

STORM WATER MANAGEMENT PLAN

FOR

“SETTLERS POINT”

TM 5423RPL3, REZ05-004

June 2009

Prepared for:

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Prepared by:



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Storm Water Management Plan For Priority Projects (Major SWMP)

The Major Stormwater Management Plan (Major SWMP) must be completed in its entirety and accompany applications to the County for a permit or approval associated with certain types of development projects. To determine whether your project is required to submit a Major or Minor SWMP, please reference the County's Stormwater Intake Form for Development Projects.

Project Name:	
Permit Number (Land Development Projects):	TM5423 RPL3, REZ 05-004
Work Authorization Number (CIP only):	
Applicant:	REC CONSULTANTS INC.
Applicant's Address:	2442 Second Ave. San Diego CA.92101
Plan Prepare By (<i>Leave blank if same as applicant</i>):	
Date:	January, 2009
Revision Date (If applicable):	June, 2009

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9926) requires all applications for a permit or approval associated with a Land Disturbance Activity to be accompanied by a Storm Water Management Plan (SWMP) (section 67.806.b). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority development project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	

Instructions for a Major SWMP can be downloaded at
<http://www.sdcountry.ca.gov/dpw/watersheds/susmp/susmp.html>

Completion of the following checklists and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION:

Please provide a brief description of the project in the following box. Please include:

- Project Location
- Project Description
- Physical Features (Topography)
- Surrounding Land Use
- Proposed Project Land Use
- Location of dry weather flows (year-round flows in streams, or creeks) within project limits, if applicable.

PROJECT LOCATION:

The scope of this SWMP is the Settlers Point Project, a 21.89-acre site located on Hwy. 8 Business, about 1000' south of Los Coches Rd. intersection in the community of Lakeside, San Diego County.

PROJECT DESCRIPTION:

At this phase of the project, the Stormwater Management Plan will address the proposed mass grading to develop four pads, paved main access and underground utilities. Grading of each of the pads is proposed to provide future residential development potential.

The report **shall** be revised at a future date to address Site Design, Low Impact Development, Source Control and Treatment Control BMPs for the residential development. Tables 7, 8, 9, 10 and 11 of this report **shall** be revised and an additional detailed LID and Treatment BMP Location Map **shall** be prepared at that time.

The County of San Diego Low Impact Development Handbook Storm Water Strategies and Appendices **shall** be referenced and implemented to the maximum extend practical.

PHYSICAL FEATURES:

Topography includes a hilltop and the majority of the site is on a southeast-facing slope. Elevation onsite ranges from approximately 600 feet above mean seal level at the southern portion of the site to approximately 700 feet above mean sea level.

SURROUNDING LAND USE:

The site is surrounded by residential development with a large undeveloped area to the west. Current land uses onsite included a single family home which was demolished in 2007, a driveway and undeveloped land. A proposed self storage project is located directly to the southwest of the Settlers Point project (Los Coches Self Storage S04-009), adjacent to Hwy. 8 Business. The site plan for the self storage project will likely be approved in the summer of 2008. An undeveloped commercial site is located directly to the southeast of the Settlers Point project. No development applications are pending on this property at this time. All of these properties are under the same family ownership.

PROPOSED LAND USE:

A total of 266 residential units may be possible given the current zoning and density assigned to each of the lots. Under the General Plan Amendment proposed for this project, the bulk of the project site is proposed for land use regulation of RV 15 with a density of 14.5. The northernmost part of the project is and will remain land use regulation RS-4, with a density of 4.3.

LOCATION OF DRY WEATHER FLOWS:

Not Applicable.

PRIORITY DEVELOPMENT PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

Table 1

PRIORITY DEVELOPMENT PROJECT	YES	NO
Redevelopment that creates or adds at least 5,000 net square feet of additional impervious surface area <u>and</u> falls under one of the criteria listed below.	X	
Residential development of more than 10 units.	X	
Commercial developments with a land area for development of greater than 1 acre.		X
Heavy industrial development with a land area for development of greater than 1 acre.		X
Automotive repair shop(s).		X
Restaurants, where the land area for development is greater than 5,000 square feet.		X
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface.		X
Environmentally Sensitive Areas (ESA): All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.		X
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff.		X
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater.	X	
Retail Gasoline Outlets (RGO) that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.		X

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered Priority Development Projects. Parking lots, buildings and other structures associated with utility projects are subject to the WPO requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

If you answered **YES** to any of the questions, please continue.

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management issues.

Table 2

	QUESTIONS	YES	NO	Information
1.	Will the proposed project disturb 50 or more acres of land? (Including all phases of development)		X	If YES, continue to 2. If NO, go to 6.
2.	Would the project site discharge directly into channels that are concrete-lined or significantly hardened such as with rip-rap, sackcrete, etc, downstream to their outfall into bays or the ocean?			If NO, continue to 3. If YES, go to 6.
3.	Would the project site discharge directly into underground storm drains discharging directly to bays or the ocean?			If NO, continue to 4. If YES, go to 6.
4.	Would the project site discharge directly to a channel (lined or un-lined) and the combined impervious surfaces downstream from the project site to discharge at the ocean or bay are 70% or greater?			If NO, continue to 5. If YES, go to 6.
5.	Project is required to manage hydromodification impacts.			Hydromodification Management Required as described in Section 67.812 b(4) of the WPO.
6.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

An exemption is potentially available for projects that are required (No. 5. in Table 2 above) to manage hydromodification impacts: The project proponent may conduct an independent geomorphic study to determine the project's full hydromodification impact. The study must incorporate sediment transport modeling across the range of geomorphically-significant flows and demonstrate to the County's satisfaction that the project flows and sediment reductions will not detrimentally affect the receiving water to qualify for the exemption.

STORMWATER QUALITY DETERMINATION

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide the following information in a printed report accompanying this form.

Table 3

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	X	
2.	Describe the local land use within the project area and adjacent areas.	X	
3.	Evaluate the presence of dry weather flow.		X
4.	Determine the receiving waters that may be affected by the project throughout all phases of development through completion (i.e., construction, long-term maintenance and operation).	X	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	X	
6.	Determine if there are any High Risk Areas (which is defined by the presence of municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.		X
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.		X
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	X	
9.	Determine the soil classification, permeability, erodibility, and depth to groundwater for Treatment BMP consideration.	X	
10.	Determine contaminated or hazardous soils within the project area.		X
11.	Determine if this project is within the environmentally sensitive areas as defined on the maps in Appendix A of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> .	X	
12.	Determine if this is an emergency project.	X	

STORMWATER QUALITY DETERMINATION (SECTION B)

PHYSICAL FEATURES:

Topography includes a hilltop and the majority of the site is on a southeast-facing slope. Elevation onsite ranges from approximately 600 feet above mean seal level at the southern portion of the site to approximately 700 feet above mean sea level.

LAND USE:

The site is surrounded by residential development with a large undeveloped area to the west. Current land uses onsite included a single family home which was demolished in 2007, a driveway and undeveloped land. A proposed self storage project is located directly to the southwest of the Settlers Point project (Los Coches Self Storage S04-009), adjacent to Hwy. 8 Business. The site plan for the self storage project will likely be approved in the summer of 2008. An undeveloped commercial site is located directly to the southeast of the Settlers Point project. No development applications are pending on this property at this time. All of these properties are under the same family ownership.

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RECEIVING WATERS:

On site runoff goes from the top-mid area to the northwest side via a proposed storm drain system of concrete pipes, gutters and spillways. Those flows are eventually discharge at the low point located at the end of the cul-de sac at Wellington Hill Drive.

Flows from the southern portions of the site are also captured via a proposed storm drain system of concrete pipes and gutters. All flows are routed towards the low point located at the intersection of Hwy. 8 Business Road and Los Coches Road. The proposed systems of concrete pipes eventually connect to an existing concrete open channel, which ultimately discharges into Los Coches Creek.

303(d) LIST:

According to the California 2006 CWA Section 303(d) list published by the San Diego Regional Water Quality Control Board, there are no impaired water bodies associated with this project.

See reference copy of 2006 CWA Section 303 (d) list. (Attachment "J")

GENERAL CLIMATE OF THE PROJECT AREA

Lakeside Community

Average temperature

December – May Average 71-73°F

May- August Average 85-90° F

August-Dec Average 90-71° F

Annual Rainfall

Feb-April 10-12”;

Year round to 15”

SOIL TYPE: C

These soils are not generally erosive, under normal rainfall conditions. The Preliminary Geotechnical Investigation by Christian Wheeler Engineering dated August 6, 2004 did not find groundwater in any of the exploratory trenches. The report concluded that no geologic hazards, such as land sliding, faulting or, of sufficient magnitude to preclude development of the site as presently contemplated are known to exist.

ENVIRONMENTALLY SENSITIVE AREAS

This project is NOT within the environmentally sensitive areas as defined on the maps in Appendix A of the *County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects*.

EMERGENCY PROJECT

This is NOT an emergency project.

WATERSHED

Please check the watershed(s) for the project.

San Juan 901	Santa Margarita 902	San Luis Rey 903	Carlsbad 904
San Dieguito 905	Penasquitos 906	♦ San Diego 907	Sweetwater 909
Otay 910	Tijuana 911	Whitewater 719	Clark 720
West Salton 721	Anza Borrego 722	Imperial 723	

Please provide the hydrologic sub-area and number(s)

Number	Name
907.0	San Diego Hydrologic Unit Watershed
907.14	Los Coches Hydrologic Subarea

Please provide the beneficial uses for Inland Surface Waters and Ground Waters.

Beneficial Uses can be obtained from the Water Quality Control Plan for the San Diego Basin, which is available at the Regional Board office or at

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	907.14	O		X					X	X		X		X		
Ground Waters	907.14	X	X	X	O											

* Excepted from Municipal

X Existing Beneficial Use

O Potential Beneficial Use

POLLUTANTS OF CONCERN

Using Table 4, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

Table 4. Anticipated and Potential Pollutants Generated by Land Use Type

<i>PDP Categories</i>	<i>General Pollutant Categories</i>								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P⁽¹⁾	P⁽²⁾	P	X
Commercial Development 1 acre or greater	P⁽¹⁾	P⁽¹⁾		P⁽²⁾	X	P⁽⁵⁾	X	P⁽³⁾	P⁽⁵⁾
Heavy industry /industrial development	X		X	X	X	X	X		
Automotive Repair Shops			X	X⁽⁴⁾⁽⁵⁾	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft ²	X	X			X	X	X		X
Parking Lots	P⁽¹⁾	P⁽¹⁾	X		X	P⁽¹⁾	X		P⁽¹⁾
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & Freeways	X	P⁽¹⁾	X	X⁽⁴⁾	X	P⁽⁵⁾	X		
<p>X = anticipated P = potential (1) A potential pollutant if landscaping exists on-site. (2) A potential pollutant if the project includes uncovered parking areas. (3) A potential pollutant if land use involves food or animal waste products. (4) Including petroleum hydrocarbons. (5) Including solvents.</p>									

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be implemented during construction of the project. The applicant will be responsible for the placement and maintenance of the BMPs incorporated into the final project design.

- ◆ Silt Fence
- ◆ Fiber Rolls
- ◆ Street Sweeping and Vacuuming
- ◆ Storm Drain Inlet Protection
- ◆ Stockpile Management
- ◆ Solid Waste Management
- ◆ Stabilized Construction Entrance/Exit
- ◆ Dewatering Operations
- ◆ Vehicle and Equipment Maintenance
- ◆ Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.
- ◆ Desilting Basin
- ◆ Gravel Bag Berm
- ◆ Sandbag Barrier
- ◆ Material Delivery and Storage
- ◆ Spill Prevention and Control
- ◆ Concrete Waste Management
- ◆ Water Conservation Practices
- ◆ Paving and Grinding Operations

EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

Complete the checklist below to determine if a proposed project will pose an “exceptional threat to water quality,” and therefore require Advanced Treatment Best Management Practices.

Table 5

No.	CRITERIA	YES	NO	INFORMATION
1.	Is all or part of the proposed project site within 200 feet of waters named on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity? Current 303d list may be obtained from the following site: http://www.swrcb.ca.gov/tmdl/docs/303dlists2006/approved/r9_06_303d_req_tmdls.pdf		X	If YES, continue to 2. If NO, go to 5.
2.	Will the project disturb more than 5 acres, including all phases of the development?			If YES, continue to 3. If NO, go to 5.
3.	Will the project disturb slopes that are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and that drain toward the 303(d) listed receiving water for sedimentation and/or turbidity?			If YES, continue to 4. If NO, go to 5.
4.	Will the project disturb soils with a predominance of USDA-NRCS Erosion factors k_f greater than or equal to 0.4?			If YES, continue to 6. If NO, go to 5.
5.	Project is not required to use Advanced Treatment BMPs.	X		Document for Project Files by referencing this checklist.
6.	Project poses an “exceptional threat to water quality” and is required to use Advanced Treatment BMPs.			Advanced Treatment BMPs must be consistent with WPO section 67.811(b)(20)(D) performance criteria

Exemption potentially available for projects that require advanced treatment:

Project proponent may perform a Revised Universal Soil Loss Equation, Version 2 (RUSLE 2), Modified Universal Soil Loss Equation (MUSLE), or similar analysis that shows to the County official's satisfaction that advanced treatment is not required

Now that the need for treatment BMPs has been determined, other information is needed to complete the SWMP.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If YES is checked, it is assumed that the measure was used for this project.

Table 6

	OPTIONS	YES	NO	N/A
1.	Has the project been located and road improvements aligned to avoid or minimize impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	X		
2.	Is the project designed to minimize impervious footprint?			X
3.	Is the project conserving natural areas where feasible?			X
4.	Where landscape is proposed, are rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?			X
5.	For roadway projects, are structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?			X
6.	Can any of the following methods be utilized to minimize erosion from slopes:			
	6.a. Disturbing existing slopes only when necessary?	X		
	6.b. Minimize cut and fill areas to reduce slope lengths?	X		
	6.c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	X		
	6.d. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?			X
	6.e. Rounding and shaping slopes to reduce concentrated flow?	X		
	6.f. Collecting concentrated flows in stabilized drains and channels?	X		

LOW IMPACT DEVELOPMENT (LID)

Each numbered item below is a LID requirement of the WPO. Please check the box(s) under each number that best describes the Low Impact Development BMP(s) selected for this project.

Table 7

1. Conserve natural Areas, Soils, and Vegetation-County LID Handbook 2.2.1
Preserve well draining soils (Type A or B)
Preserve Significant Trees
Other. Description:
<p>◆ 1. Not feasible. State Reason: There are no significant (native) trees onsite.</p>
2. Minimize Disturbance to Natural Drainages-County LID Handbook 2.2.2
Set-back development envelope from drainages
<input type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
Other. Description:
<p>◆ 2. Not feasible. State Reason: There are no natural drainages onsite.</p>
3. Minimize and Disconnect Impervious Surfaces (see 5) -County LID Handbook 2.2.3
Clustered Lot Design
Items checked in 5?
<p>◆ Other. Description: Reduction of impervious surfaces. Narrow road proposed.</p>
3. Not feasible. State Reason:
4. Minimize Soil Compaction-County LID Handbook 2.2.4
<input type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
◆ Re-till soils compacted by construction vehicles/equipment
<input type="checkbox"/> Collect & re-use upper soil layers of development site containing organic materials
Other. Description:
4. Not feasible. State Reason:
5. Drain Runoff from Impervious Surfaces to Pervious Areas-County LID Handbook 2.2.5

LID Street & Road Design
Curb-cuts to landscaping
Rural Swales
Concave Median
Cul-de-sac Landscaping Design
♦ Other. Description: Flow from pavement is being directed to proposed inlets with a medium to high efficiency filtration device. (Suntree Technologies "Curb Inlet Basket")
LID Parking Lot Design
Permeable Pavements
Curb-cuts to landscaping
Other. Description:
LID Driveway, Sidewalk, Bike-path Design
Permeable Pavements
Pitch pavements toward landscaping
Other. Description:
LID Building Design
Cisterns & Rain Barrels
Downspout to swale
Vegetated Roofs
Other. Description:
LID Landscaping Design
Soil Amendments
Reuse of Native Soils
Smart Irrigation Systems
Street Trees
Other. Description:
Not feasible. State Reason:

CHANNELS & DRAINAGES

Complete the following checklist to determine if the project includes work in channels.

Table 8

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project include work in channels?		X		If YES go to 2 If NO go to 13.
2.	Will the project increase velocity or volume of downstream flow?				If YES go to 6.
3.	Will the project discharge to unlined channels?				If YES go to 6.
4.	Will the project increase potential sediment load of downstream flow?				If YES go to 6.
5.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?				If YES go to 8.
6.	Review channel lining materials and design for stream bank erosion.				Continue to 7.
7.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.				Continue to 8.
8.	Include, where appropriate, energy dissipation devices at culverts.				Continue to 9.
9.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.				Continue to 10.
10.	Include, if appropriate, detention facilities to reduce peak discharges.				Continue to 11.
11.	“Hardening“ natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.				Continue to 12.
12.	Provide other design principles that are comparable and equally effective.				Continue to 13.
13.	End	X			

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

Table 9

BMP			YES	NO	N/A
1.	Provide Storm Drain System Stenciling and Signage				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO LOS COCHES CREEK") and/or graphical icons to discourage illegal dumping.	X		
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	X		
2.	Design Outdoors Material Storage Areas to Reduce Pollution Introduction				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.			X
	2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.			X
	2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.			X
	2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.			X
3.	Design Trash Storage Areas to Reduce Pollution Introduction				
	3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,			X
	3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.			X
4.	Use Efficient Irrigation Systems & Landscape Design				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.				
	4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	X		
	4.b.	Designing irrigation systems to each landscape area's specific water requirements.	X		
	4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	X		
	4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	X		
5.	Private Roads				
	The design of private roadway drainage shall use at least one of the following				

BMP			YES	NO	N/A
	5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.			X
	5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.			X
	5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.			X
	5.d.	Other methods that are comparable and equally effective within the project.			X
6.	Residential Driveways & Guest Parking				
	The design of driveways and private residential parking areas shall use one at least of the following features.				
	6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.			X
	6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.			X
	6.c.	Other features which are comparable and equally effective.			X
7.	Dock Areas				
	Loading/unloading dock areas shall include the following.				
	7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			X
	7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			X
	7.c.	Other features which are comparable and equally effective.			X
8.	Maintenance Bays				
	Maintenance bays shall include the following.				
	8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			X
	8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			X
	8.c.	Other features which are comparable and equally effective.			X
9.	Vehicle Wash Areas				
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.				
	9.a.	Self-contained; or covered with a roof or overhang.			X
	9.b.	Equipped with a clarifier or other pretreatment facility.			X
	9.c.	Properly connected to a sanitary sewer.			X
	9.d.	Other features which are comparable and equally effective.			X

BMP		YES	NO	N/A
10.	Outdoor Processing Areas			
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.			
	10.a. Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			X
	10.b. Grade or berm area to prevent run-on from surrounding areas.			X
	10.c. Installation of storm drains in areas of equipment repair is prohibited.			X
	10.d. Other features which are comparable or equally effective.			X
11.	Equipment Wash Areas			
	Outdoor equipment/accessory washing and steam cleaning activities shall be.			
	11.a. Be self-contained; or covered with a roof or overhang.			X
	11.b. Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			X
	11.c. Be properly connected to a sanitary sewer.			X
	11.d. Other features which are comparable or equally effective.			X
12.	Parking Areas			
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.			
	12.a. Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.			X
	12.b. Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.			X
	12.c. Other design concepts that are comparable and equally effective.			X
13.	Fueling Area			
	Non-retail fuel dispensing areas shall contain the following.			
	13.a. Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			X
	13.b. Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			X
	13.c. Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			X

BMP			YES	NO	N/A
	13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			X

Please list other project specific Source Control BMPs in the following box. Write N/A if there are none.

N/A

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 10), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 4). Any pollutants identified by Table 4, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 10, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority development projects that are **not** anticipated to generate a pollutant for which the receiving water is CWA 303(d) impaired shall select a single or combination of stormwater BMPs from Table 10, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the “maximum extent practicable” standard.

Table 10. Treatment Control BMP Selection Matrix

Pollutants of Concern	Bioretention Facilities (LID)*	Settling Basins (Dry Ponds) SELECTED	Wet Ponds and Wetlands	Infiltration Facilities or Practices (LID)*	Media Filters SELECTED	High-rate biofilters	High-rate media filters	Trash Racks & Hydro-dynamic Devices
Coarse Sediment and Trash	High	High	High	High	High	High	High	High
Pollutants that tend to associate with fine particles during treatment	High	High	High	High	High	Medium	Medium	Low
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low

*Additional information is available in the County of San Diego LID Handbook.

NOTES ON POLLUTANTS OF CONCERN:

In Table 11, Pollutants of Concern are grouped as gross pollutants, pollutants that tend to associate with fine particles, and pollutants that remain dissolved.

Table 11

Pollutant	Coarse Sediment and Trash	Pollutants that tend to associate with fine particles during treatment	Pollutants that tend to be dissolved following treatment
Sediment	X	X	
Nutrients		X	X
Heavy Metals		X	
Organic Compounds		X	
Trash & Debris	X		
Oxygen Demanding		X	
Bacteria		X	
Oil & Grease		X	
Pesticides		X	

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality treatment volume or flow values for the selected project Treatment BMP(s). Guidelines for design calculations are located in Chapter 5, Section 4.3, Principle 8 of the County SUSMP. Label outfalls on the BMP map. The Water Quality peak rate of discharge flow (Q_{wQ}) and the Water Quality storage volume (V_{wQ}) is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	Q_{wQ} (cfs)	V_{wQ} (ft ³)
PAD 1A	2.33	0.15	N/A
PAD1B	2.69	0.17	N/A
PAD 2	3.69	0.23	N/A
PAD 3	3.46	0.22	N/A
PAD 4	2.77	0.18	N/A
AREA 5	1.95	0.12	N/A

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters
Bioretention swale
Vegetated filter strip
Stormwater Planter Box (open-bottomed)
Stormwater Flow-Through Planter (sealed bottom)
Bioretention Area
Vegetated Roofs/Modules/Walls
Detention Basins
♦ Extended/dry detention basin with grass/vegetated lining
Extended/dry detention basin with impervious lining
Infiltration Basins
Infiltration basin
Infiltration trench
Dry well
Permeable Paving
Gravel
Permeable asphalt
Pervious concrete
Unit pavers, ungrouted, set on sand or gravel
Subsurface reservoir bed
Wet Ponds or Wetlands
Wet pond/basin (permanent pool)
Constructed wetland
Filtration
♦ Media filtration
Sand filtration
Hydrodynamic Separator Systems
Swirl Concentrator
Cyclone Separator
<u>Trash Racks and Screens</u>

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	COMPLETED	NO
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	X	
2. Engineering calculations for the BMP(s)	X	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation.

1. TEMPORARY DESILTING BASIN

A desilting basin is a temporary basin formed by excavating and/or constructing an embankment so that sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out before the runoff is discharged. Sediment consists primarily of gravel, trash, solids or sand, which are relatively large particles.

2. INLET FILTRATION SYSTEM

This alternative was selected instead of bioswales for street water treatment. The grade on the proposed street does not allow enough retention time for effective treatment of pollutants.

Suntree Technologies "Curb Inlet Basket" product with a fitted hydrocarbon absorption boom will be installed in all curb inlets onsite. This multi-stage filtration device captures everything from hydrocarbons, to sediment, to grass clippings, to litter.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project. Guidelines for each category are located in Chapter 5, Section 5.2 of the County SUSMP.

CATEGORY	SELECTED	
	YES	NO
First		
Second ¹	X	
Third ¹		
Fourth		

Note:

1. Projects in Category 2 or 3 may choose to establish or be included in a Stormwater Maintenance Assessment District for the long-term maintenance of treatment BMPs.

ATTACHMENTS

Please include the following attachments.

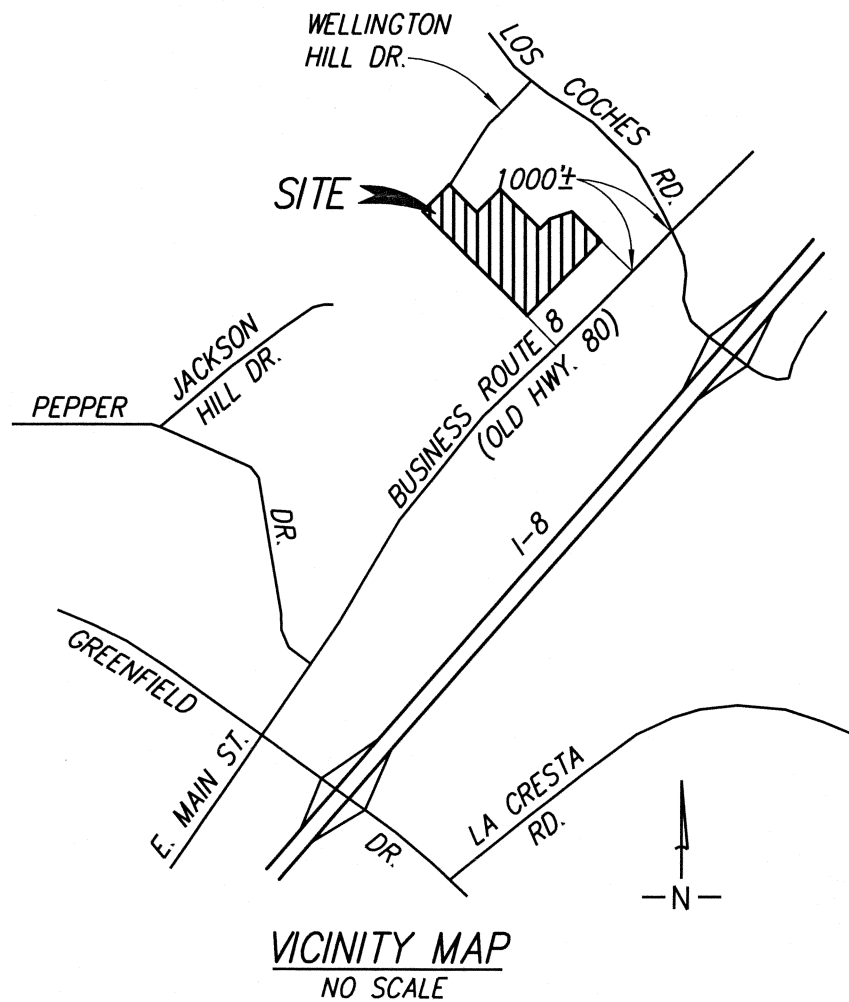
ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data		X
D	LID and Treatment BMP Location Map	X	
E	Treatment BMP Datasheets		
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Fiscal Resources	X	
H	Certification Sheet	X	
I	Addendum	X	

Note: Attachments A and B may be combined.

ATTACHMENT A

PROJECT LOCATION MAP

VICINITY MAP FOR: SETTLERS POINT PROJECT



Consultants, Inc.

Civil Engineering - Environmental

2442 Second Avenue
San Diego, CA 92101
(619)232-9200 (619)232-9210 Fax

ATTACHMENT B

SITE MAP

PROPOSED

LEGEND

EXISTING

PARCEL LINE

PROJECT BOUNDARY

EASEMENTS

WATER

SEWER

RETAINING WALL

FILL/CUT SLOPE

PCC CURB, GUTTER & SIDEWALK

STORM DRAIN

PCC BROW DITCH

EARTHEN SWALE (1% MIN.)

GRADE

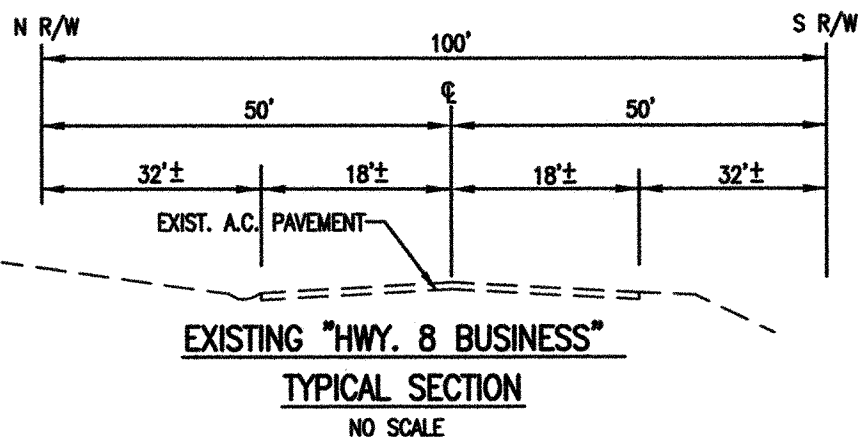
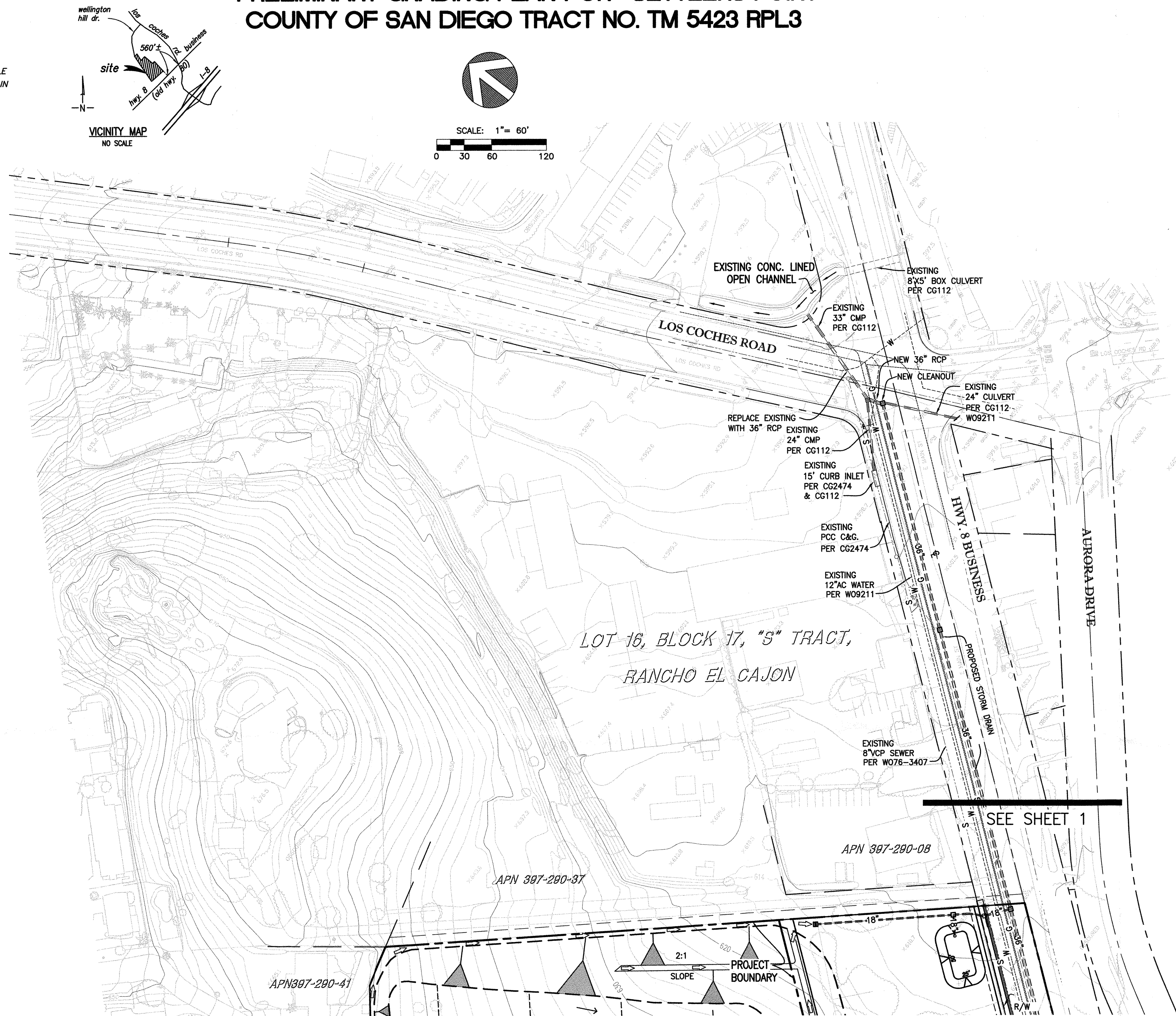
DAYLIGHT

FINISH PAD ELEVATIONS

FINISH STREET CONTOURS

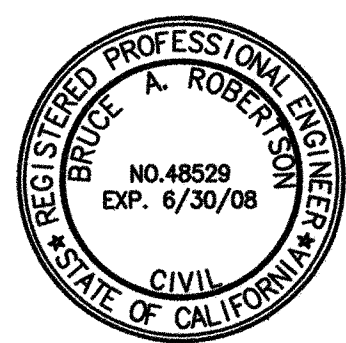
SEDIMENT CONTROL DESILTING AND RETENTION BASIN

PRELIMINARY GRADING PLAN FOR: SETTLERS POINT
COUNTY OF SAN DIEGO TRACT NO. TM 5423 RPL3



NOTES

- 1) TOTAL SITE ACREAGE: 21.89 ACRES
- 2) ASSESSOR'S PARCEL NUMBER:
397-210-17; 397-212-01; 397-391-02
397-212-02; 397-291-15, 16, & 17
- 3) APPROXIMATE GRADING QUANTITIES:
EXCAVATION 218,000 CY
EMBANKMENT 218,000 CY
IMPORT 0 CY
- 4) THIS PLAN IS PROVIDED TO ALLOW FOR A FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
- 5) TOPOGRAPHY SHOWN IS NAD83, PROVIDED BY PROJECT DESIGN CONSULTANTS DATED: 11-17-04



ENGINEER OF WORK

BRUCE A. ROBERTSON, R.C.E. 48529 DATE
EXPIRES 6/30/08

OWNER/SUBDIVIDER

DANIEL B. ODOM AND THOMAS B. ODOM
1440 WEST RENWICK ROAD
SAN DIMAS, CA. 91773
TEL: (951) 295-9344

Civil Engineering - Environmental
Land Surveying

RE.C

2442 Second Avenue
San Diego, CA 92101
(619)232-9200 (619)232-9210 Fax
Consultants, Inc.

REVISIONS		DESCRIPTION
BY	DATE	

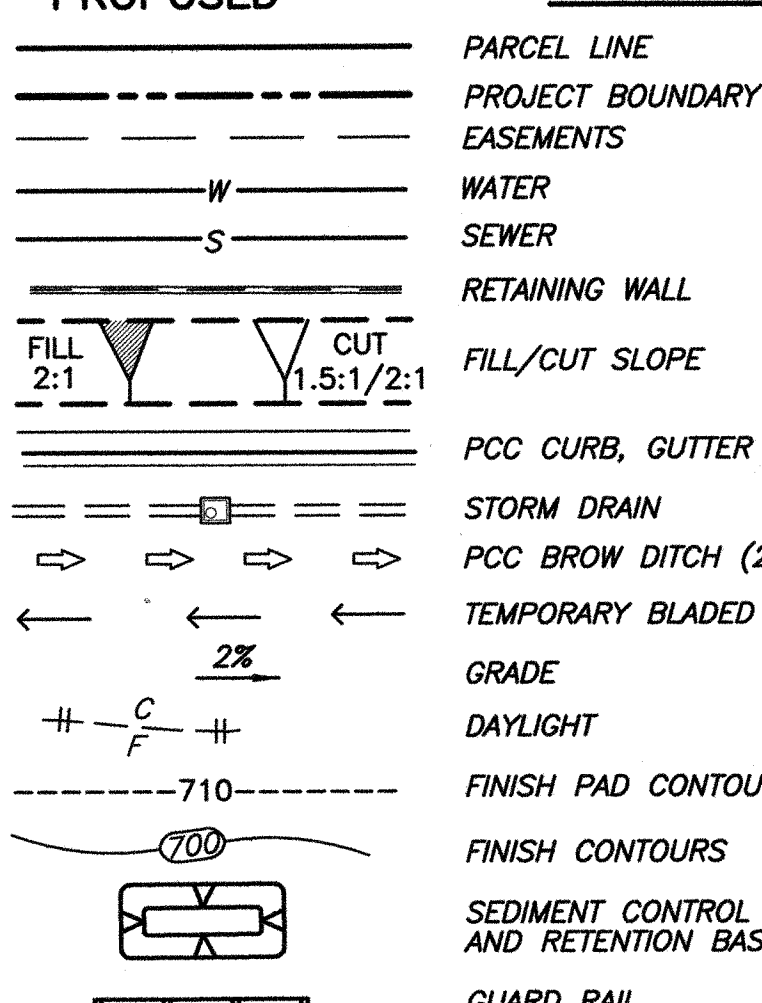
JOB NO. 685

PRELIMINARY GRADING PLAN
"SETTLERS POINT"
COUNTY OF SAN DIEGO
TRACT NO. TM 5423 RPL3, REZ05-004

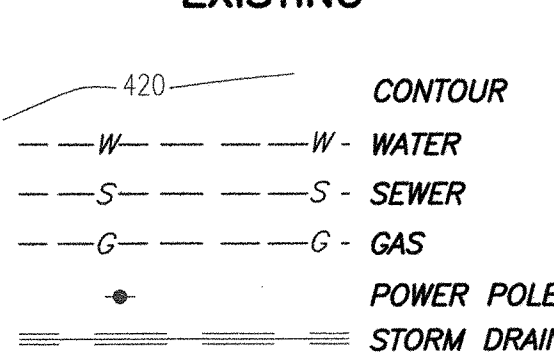
SHEET NO.

2 OF 2

PROPOSED LEGEND



EXISTING



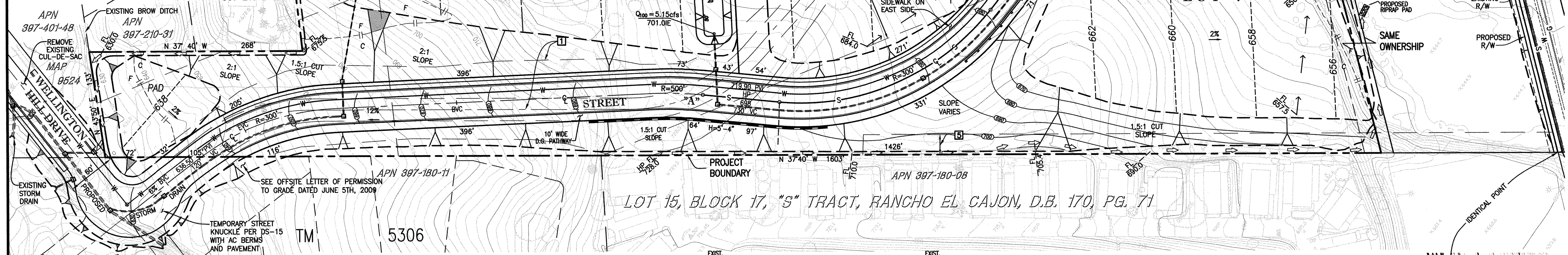
SLOPE ANALYSIS		
SLOPE RANGE	PERCENT OF SITE	AREA
0-15%	50.7%	11.10 AC.
15-25%	39.7%	8.69 AC.
25-50%	8.7%	1.90 AC.
50-100%	0.9%	0.20 AC.
TOTAL	100%	21.89 AC.

PRELIMINARY GRADING PLAN FOR: SETTLERS POINT
COUNTY OF SAN DIEGO TRACT NO. TM 5423 RPL3

SEE SHEET 2

- EASEMENTS**
- 1) EMERGENCY STREET ACCESS AND SLOPE EASEMENT REC. 5-31-05 INSTR. NO. 2005-0451177. TO BE QUITCLAIMED
 - 2) 2' WIDE PUBLIC UTILITIES EASEMENT REC. 8-30-33, BK. 235, PG. 114, O.R. TO BE QUITCLAIMED
 - 3) 300' WIDE PIPELINE & ACCESS EASEMENT REC. 6-2-04, INSTR. NO. 2004-0511832 O.R. TO BE QUITCLAIMED
 - 4) 10' WIDE PIPELINE & ACCESS EASEMENT REC. 5-24-48, BK. 2810, PG. 473, O.R. TO BE QUITCLAIMED
 - 5) 25' WIDE RIGHT OF WAY EASEMENT REC. 2-2-43, BK. 1450, PG. 369 O.R. REC. 9-21-01, INSTR. NO. 2001-0682041 O.R. TO BE QUITCLAIMED
 - 6) 10' WIDE SEWER EASEMENT REC. 12-14-59, BK. 8044, PG. 564 & 566, O.R. TO REMAIN
 - 7) PUBLIC UTILITIES EASEMENT REC. 12-20-87, INSTR. NO. 106344 O.R. TO REMAIN
 - 8) STATE HIGHWAY, SLOPE & DRAINAGE EASEMENTS REC. 1-29-32, BK. 87, PG. 100, O.R. REC. 1-29-32, BK. 82, PG. 221, O.R. REC. 5-18-32, BK. 114, PG. 255, O.R. TO REMAIN

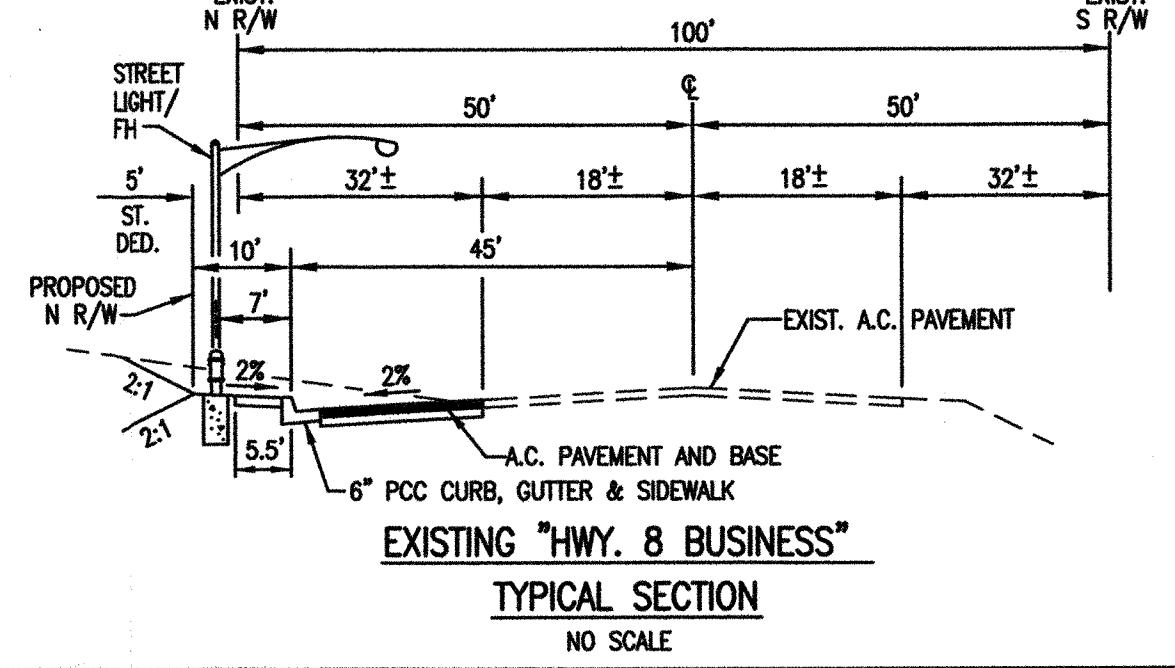
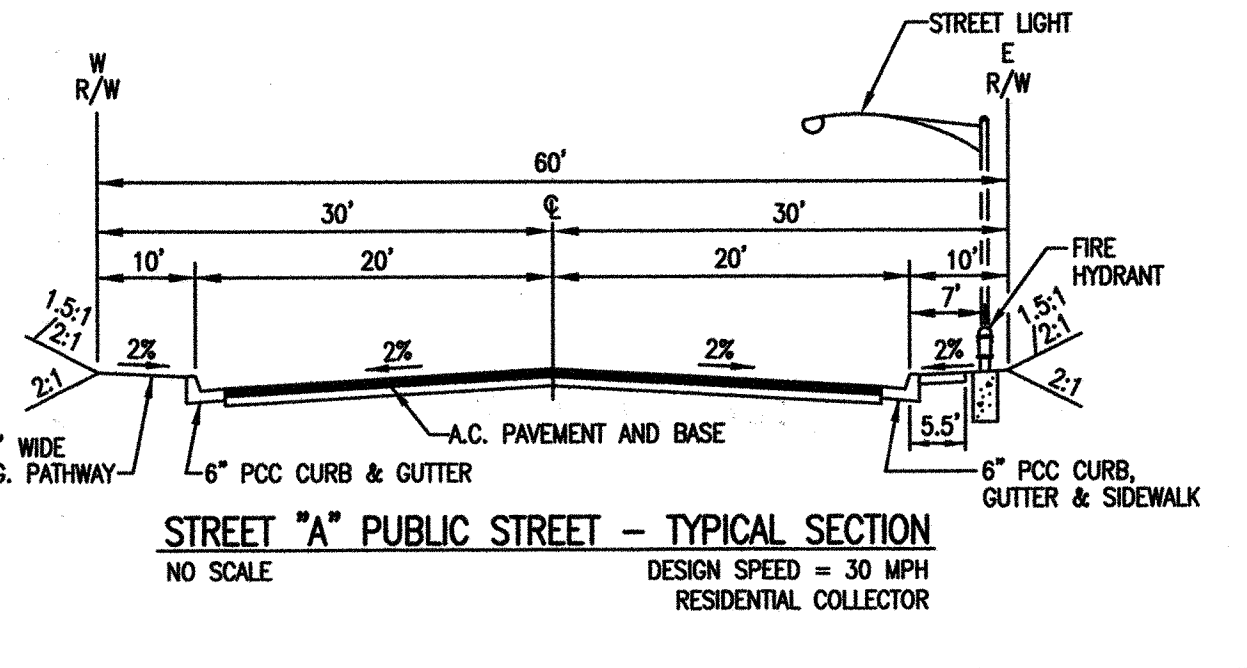
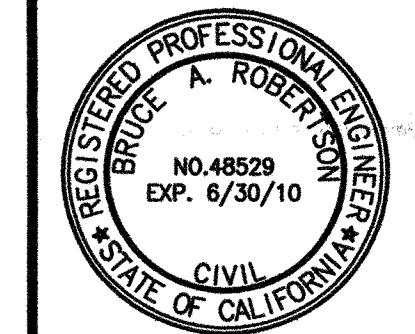
NON-PLOTTABLE EASEMENTS TO BE QUITCLAIMED:
FLUME EASEMENT-REC. 4-21-1843, BK. 212, PG. 337 OF DEEDS
PIPELINE EASEMENT-REC. 5-11-1895, BK. 238, PG. 161 OF DEEDS



OWNER/SUBDIVIDER
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1440 WEST RENWICK ROAD
SAN DIMAS, CA 91773
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ENGINEER OF WORK
BRUCE A. ROBERTSON, R.C.E. 48529
EXPIRES 6/30/10

DATE
EXPIRES 6/30/10



NOTES

- TOTAL SITE ACREAGE: 21.89 ACRES
- ASSESSOR'S PARCEL NUMBER: 397-210-17; 397-212-01; 397-391-02; 397-212-02; 397-291-15, 16, & 17
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- TOPOGRAPHY SHOWN IS NAD83, PROVIDED BY PROJECT DESIGN CONSULTANTS DATED: 11-17-04

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RECO
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REVISIONS	BY	DATE	DESCRIPTION

JOB NO. 685

PRELIMINARY GRADING PLAN
"SETTLERS POINT"
COUNTY OF SAN DIEGO
TRACT NO. TM 5423 RPL3, REZ05-004

SHEET NO.
1 OF 2

ATTACHMENT C

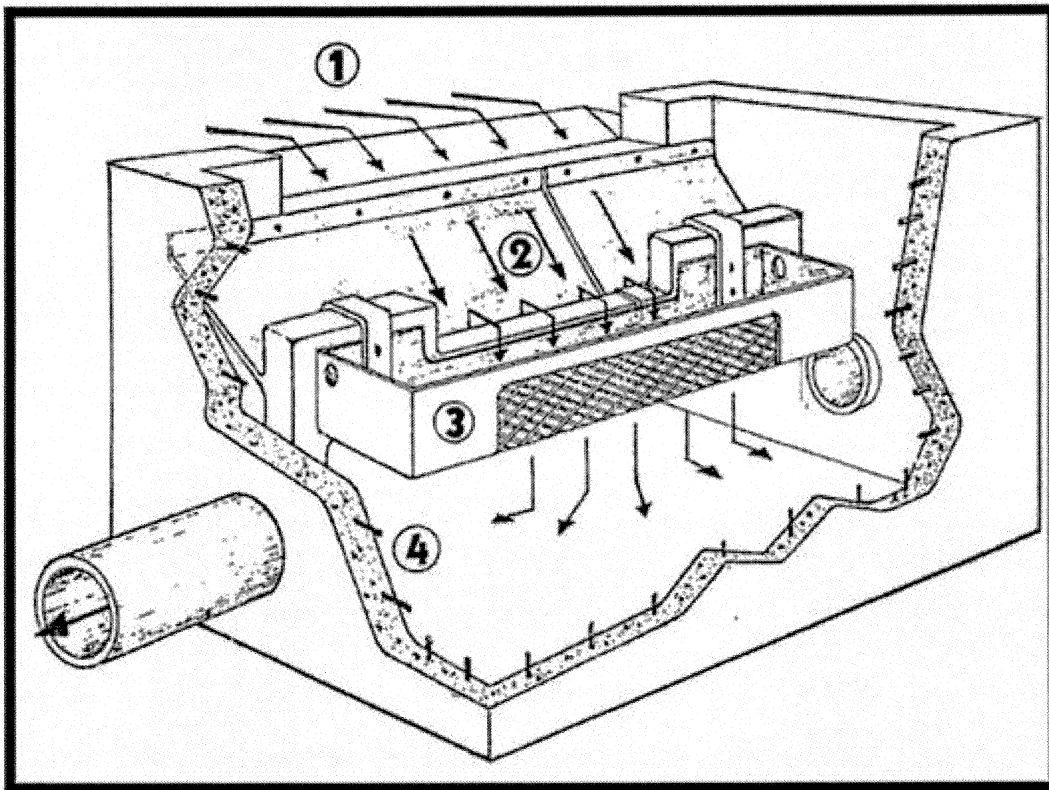
RELEVANT MONITORING DATA

(NOTE: PROVIDE RELEVANT WATER QUALITY MONITORING DATA IF AVAILABLE.)

“SUNTREE TECHNOLOGIES CURB INLET BASKET”

Stormwater **Filter** for curb type inlets where the only access is a manhole. Manufactured of marine grade fiberglass and stainless steel.

A shelf system directs water flow into the filtration basket and positions the basket directly under the manhole for easy access. If necessary, the water flow can bypass the entire filtration system simply by flowing past the filter and into the catchbasin.



1. Stormwater runoff carrying debris and pollutants enters curb inlet
2. Adjustable throat width funnels water to weir. The immediate drop in the throat elevation prevents head losses through the inlet. Sediment will collect along the incoming side of the weir.
3. Water flows over weir and into removable basket, filtering trash, leaves, yard clippings, sediment, etc. If desired, a hydrocarbon absorption boom * can be fitted along the incoming edge of the basket.

4. Cleaner water leaves basket and enters catchbasin, then flows down stream. The position of the CIB, high in the catch basin, avoids any restriction of up-stream pipes.

* ***Storm Boom Type 1*** is filled with only Absorbent W and has a large sieve size covering for better stormwater penetration. Absorbent W is a cellulose filler made from reclaimed paper mill by-products, and it is certified by Green Cross as 100% recycled material. Absorbed liquid is drawn into the cellulose fibers through capillary action and locked into the boom by encapsulation. Absorbent W is a wide spectrum absorbent capable of absorbing chemicals other than hydrocarbons.

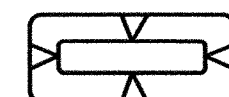
ATTACHMENT D

LID AND TREATMENT BMP LOCATION MAP

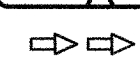
LEGEND

PERMANENT BMP

SILTATION BASIN



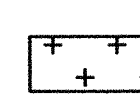
PCC BROW DITCH



IMPERVIOUS AREA AC



GRADED PAD PROTECTION,
BONDED FIBER MATRIX
(BFM)



BMP FILTER MEDIA
BIO-CLEAN CURB INLET BASKET



APPLICATION RATES SHALL BE 3500 POUNDS PER
ACRE. SHALL BE APPLIED 24 HRS BEFORE
RAINFALL.
BFM SHALL BE APPLIED TO PROVIDE 100%
COVERAGE

HYDRO-SEED ON GRADED
SLOPES



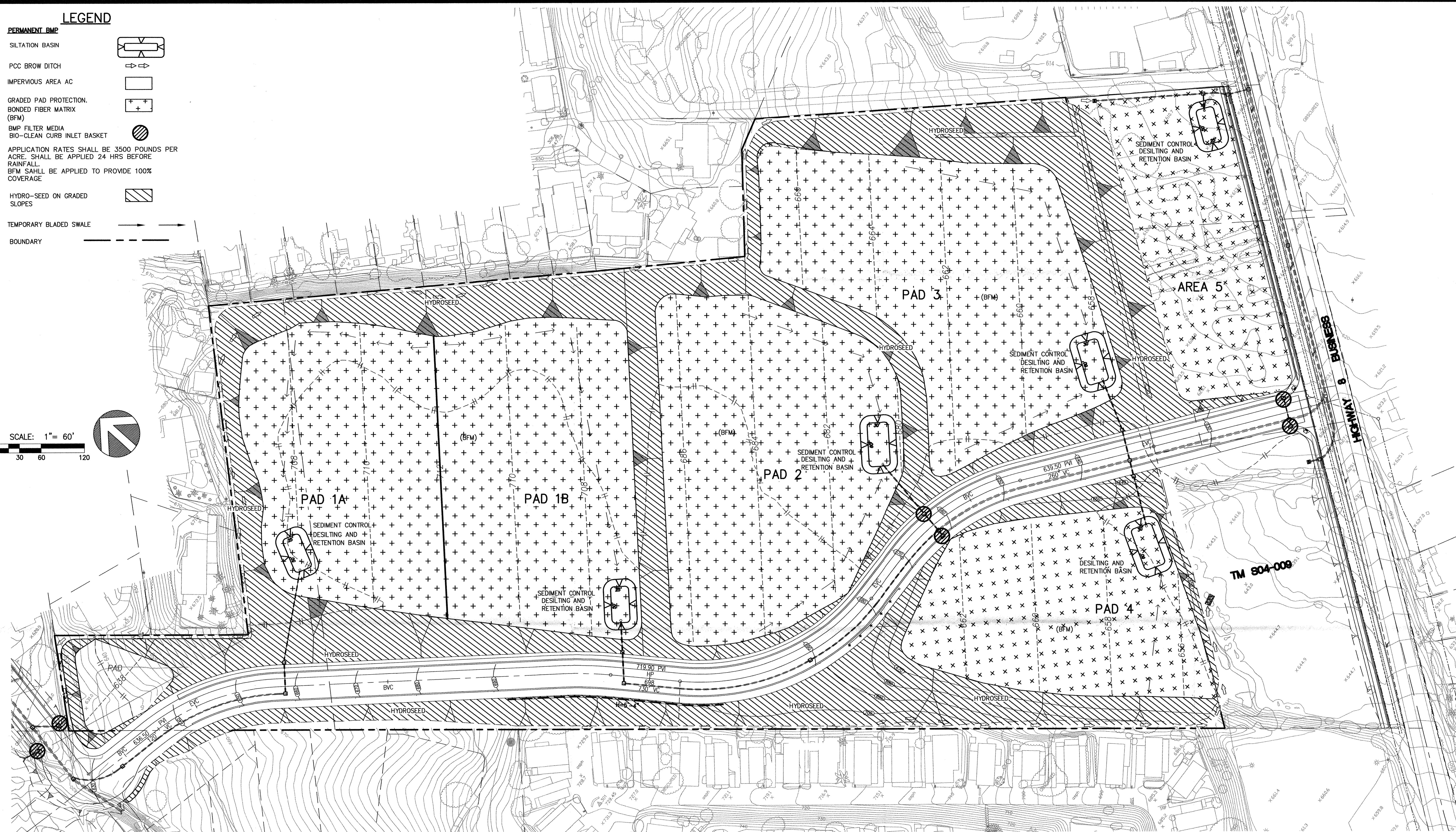
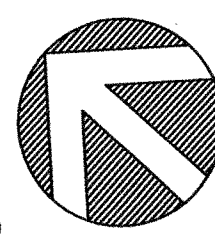
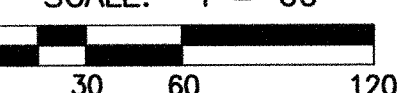
TEMPORARY BLADED SWALE



BOUNDARY



SCALE: 1"= 60'



"SETTLERS POINT" BMP MAP



Civil Engineering-Environmental

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ATTACHMENT E

TREATMENT BMP DATASHEET

*(NOTE: POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT
WWW.CABMPHANDBOOKS.COM. INCLUDE ENGINEERING CALCULATIONS FOR SIZING
THE TREATMENT BMP.)*

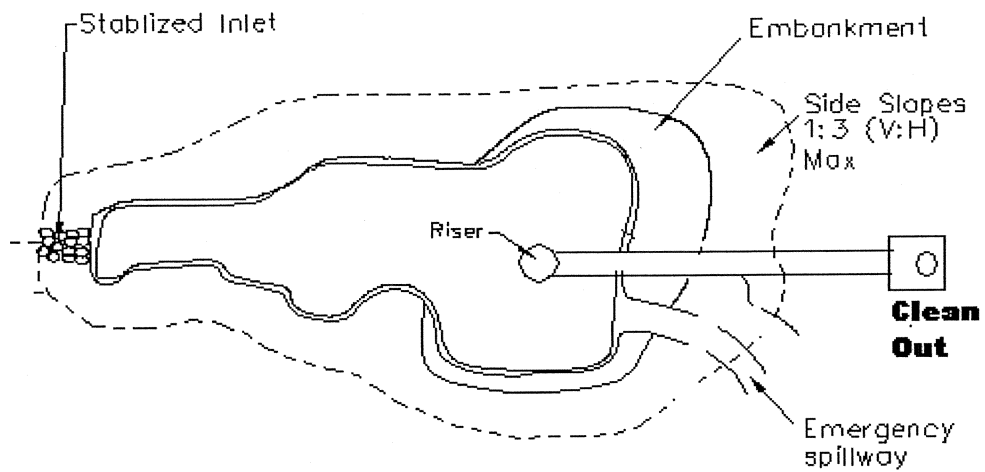
Design and sizing a temporary Desilting Basin for our project (typical lot)

From Caltrans Storm Water Quality Handbooks section 4

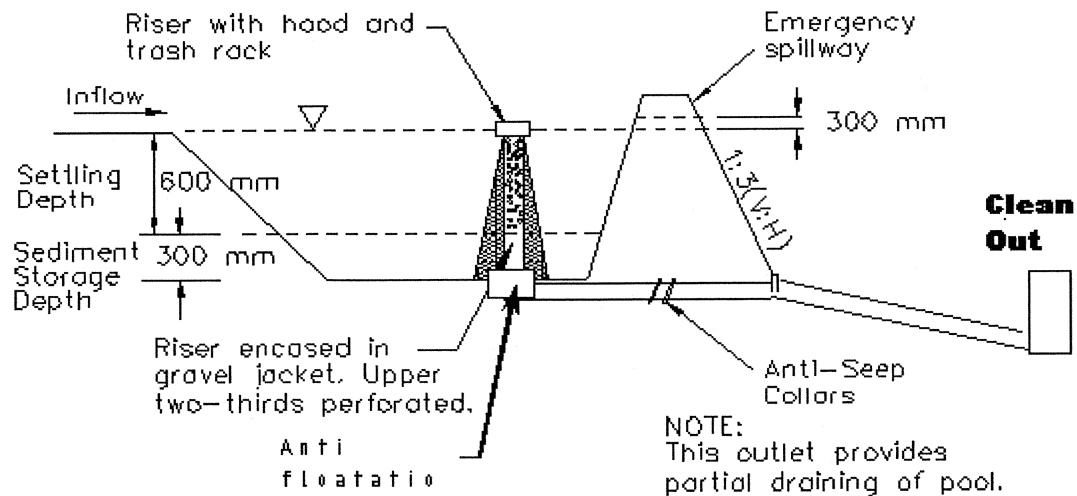
Construction Site Best Management Practices Manual/Desilting Basin SC-2

Option 2:

Sediment basin(s), as measured from the bottom of the basin to the principal outlet, shall have at least a capacity equivalent to 102 cubic meters (3,600 cubic feet) of storage per 0.4 hectare (1 acre) draining into the sediment basin. The length of the basin shall be more than twice the width of the basin. The length is determined by measuring the distance between the inlet and the outlet; and the depth must not be less than 0.9 m (3 ft) nor greater than 1.5 m (5 ft) for safety reasons and for maximum efficiency



TOP VIEW



MULTIPLE ORIFICE DESIGN

1.Desilting basin for pad 1A

Drainage area = 2.3 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =2.3 ac X 3,600 cf/ac =8,280 cubic feet

Length = 2times (width of basin)

Proposed dimensions: 35'x 60', depth 5'; 6" freeboard.

Revising the capacity:

35' x 60' x 5'=10,500cf >8,280 cf. ok.

2.Desilting basin for pad 1B

Drainage area = 2.69 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =2.69 ac X 3,600 cf/ac =9,684 cubic feet

Length = 2(width of basin)

Proposed dimensions: 35'x 60', depth 5'; 6" freeboard.

Revising the capacity:

35' x 60' x 5'=10,500cf >9,684 cf ok.

3.Desilting basin for pad 2

Drainage area = 3.69 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =3.69 ac X 3,600 cf/ac =13,284 cubic feet

Length = 2(width of basin)

Proposed dimensions: 40'x 70', depth 5'; 6" freeboard.

Revising the capacity:

40' x 70' x 5'=14,000cf >13,284cf ok.

3.Desilting basin for pad 3

Drainage area = 3.46 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =3.46 ac X 3,600 cf/ac =12,456 cubic feet

Length = 2(width of basin)

Proposed dimensions: 40'x 70', depth 5'; 6" freeboard.

Revising the capacity:

40' x 70' x 5'=14,000cf >12,546cf ok.

5.Desilting basin for pad 4

Drainage area = 2.77 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =2.77 ac X 3,600 cf/ac =9,972 cubic feet

Length = 2(width of basin)

Proposed dimensions: 40'x 70', depth 5'; 6" freeboard.

Revising the capacity:

40' x 70' x 5'=14,000cf >9,972cf ok.

4.Desilting basin for area 5

Drainage area = 1.95 ac.

Required sediment capacity of storage=3,600 cf./ acre

Storage =1.95 ac X 3,600 cf/ac =7,020 cubic feet

Length = 2(width of basin)

Proposed dimensions: 35'x 60', depth 5'; 6" freeboard.

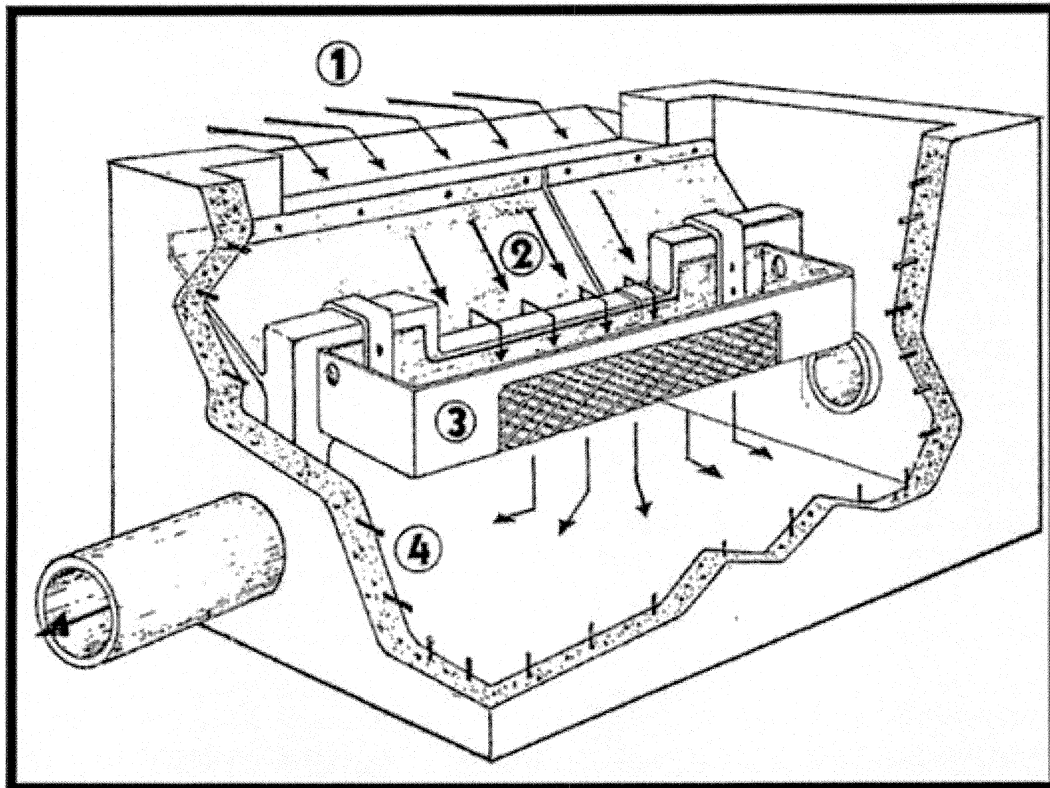
Revising the capacity:

35' x 60' x 5'=10,500cf >7,020cf ok.

“SUNTREE TECHNOLOGIES CURB INLET BASKET”

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A shelf system directs water flow into the filtration basket and positions the basket directly under the manhole for easy access. If necessary, the water flow can bypass the entire filtration system simply by flowing past the filter and into the catchbasin.



1. Stormwater runoff carrying debris and pollutants enters curb inlet
2. Adjustable throat width funnels water to weir. The immediate drop in the throat elevation prevents head losses through the inlet. Sediment will collect along the incoming side of the weir.
3. Water flows over weir and into removable basket, filtering trash, leaves, yard clippings, sediment, etc. If desired, a hydrocarbon absorption boom * can be fitted along the incoming edge of the basket.
4. Cleaner water leaves basket and enters catchbasin, then flows down stream. The position of the CIB, high in the catch basin, avoids any restriction of up-stream pipes.

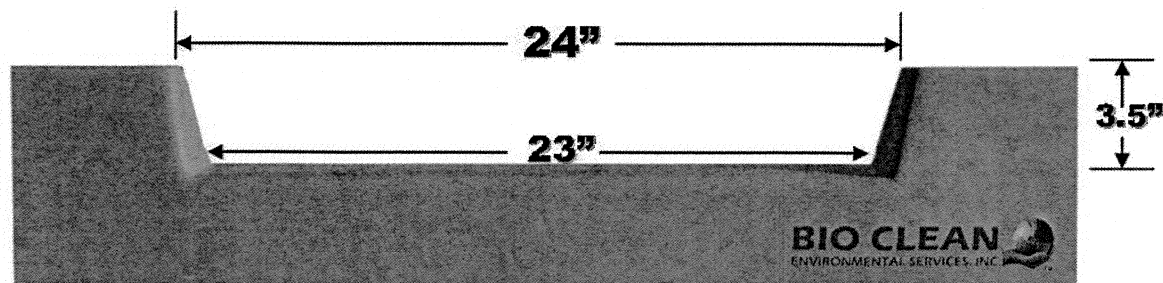
* **Storm Boom Type 1** is filled with only Absorbent W and has a large sieve size covering for better stormwater penetration. Absorbent W is a cellulose filler made from reclaimed paper mill by-

products, and it is certified by Green Cross as 100% recycled material. Absorbed liquid is drawn into the cellulose fibers through capillary action and locked into the boom by encapsulation. Absorbent W is a wide spectrum absorbent capable of absorbing chemicals other than hydrocarbons.

TREATMENT CALCULATING for BIO CLEAN Curb Inlet Units

This calculation supersedes the calculation dated 10/29/2001 preformed by Rick Engineering based on new information for geometry of weir.

Bio Clean Curb Inlet Basket Weir



$L = 23''$

$H = 3.5''$

Breadth = 3.5''

Information Provided by
Manufacturer

Weir Coefficient, $C_w = 2.8$

$Q = CLH^{3/2}$

At $H > 3.5''$

Some flow may bypass basket & sorbent material.
Therefore, $H = 3.5''$ is max H for 100% treatment

$$Q_T = (2.8)(23/12)(3.5/12)^{3/2}$$

$$Q_T = 0.85 \text{ cfs}$$

* Note that Bio Clean can create a taller weir if needed.



ENVIRO-SAFE HIGH CAPACITY GRATE INLET SKIMMER
CALIFORNIA CURB SHELF BASKET WATER CLEANSING SYSTEM
SAN DIEGO REGIONAL STANDARD CURB INLET

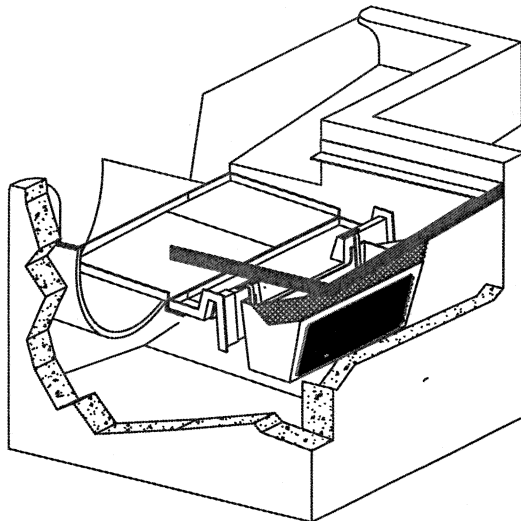


FIGURE 1
DETAIL OF PARTS

REMOVABLE BASKET CATCHES EVERYTHING
AND MAY BE REMOVED THROUGH MANHOLE
WITHOUT ENTRY.

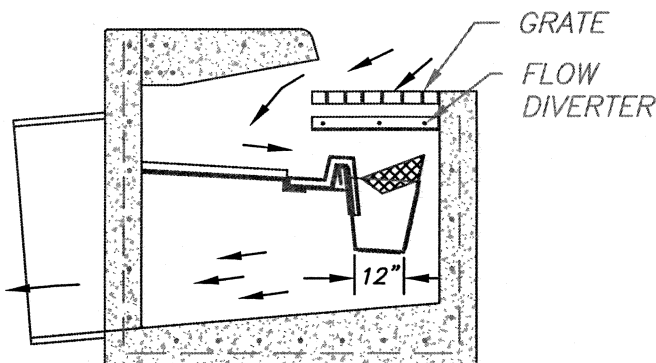


FIGURE 3
DETAIL OF PROCESS

BOX MANUFACTURED FROM
MARINE GRADE FIBERGLASS & GEL
COATED FOR UV PROTECTION

5 YEAR MANUFACTURERS WARRANTY

PATENTED

ALL FILTER SCREENS ARE STAINLESS STEEL

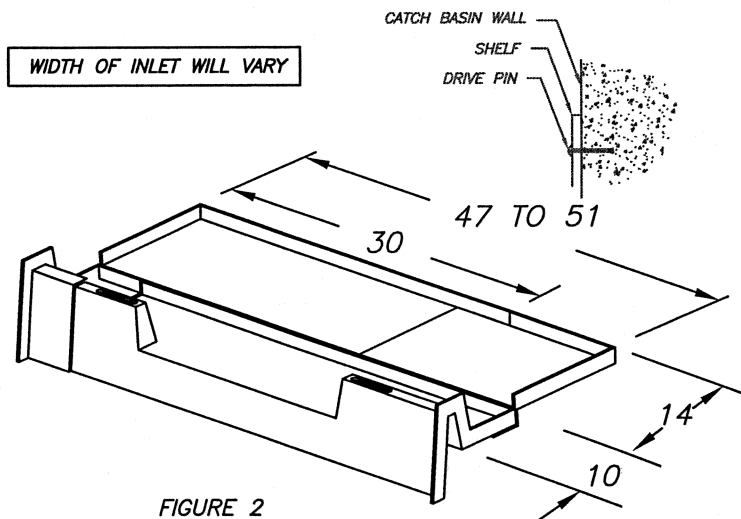


FIGURE 2
DETAIL OF INSTALLATION

FLOW RATES per 3 FT. Basket				
$Q = 50 * c_d * A \sqrt{2 * g * h}$ $c_d = \text{Coefficient of Discharge} = .67$				
	50	A (ft ²)	h (ft)	Q (ft ³ /s)
Coarse Screen	.62	.84	0.146	1.06
Med Screen	.56	1.36	0.75	3.53
Fine Screen	.68	1.02	1.167	4.01
TOTAL				8.6

The above flow rates are based on unobstructed screens.

NOTES:

1. SHELF SYSTEM PROVIDES FOR ENTIRE COVERAGE OF INLET OPENING SO TO DIVERT ALL FLOW TO BASKET.
2. SHELF SYSTEM MANUFACTURED FROM MARINE GRADE FIBERGLASS, GEL COATED FOR UV PROTECTION.
3. SHELF SYSTEM ATTACHED TO THE CATCH BASIN WITH NON-CORROSIVE HARDWARE.
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5. FILTRATION BASKET FINE SCREEN AND COARSE CONTAINMENT SCREEN MANUFACTURED FROM STAINLESS STEEL.
6. FILTRATION BASKET HOLDS BOOM OF ABSORBENT MEDIA TO CAPTURE HYDROCARBONS. BOOM IS EASILY REPLACED WITHOUT REMOVING MOUNTING HARDWARE.
7. FILTRATION BASKET LOCATION IS DIRECTLY UNDER MANHOLE FOR EASY MAINTENANCE.

SUNTREE QUALITY PRODUCTS ARE BUILT FOR EASY CLEANING AND ARE
DESIGNED TO BE PERMANENT INFRASTRUCTURE AND SHOULD
LAST FOR DECADES.

SUNTREE TECHNOLOGIES 798 CLEARLAKE RD. SUITE #2 COCOA FL. 32922 TEL. 321-637-7552 FAX 321-637-7554	
CURB INLET BASKET SYSTEM	
DATE: 04/12/04	SCALE: SF = 15
DRAFTER: N.R.B.	UNITS = INCHES

PROJECT:	
REVISION:	DATE:
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REVISION:	DATE:
REVISION:	DATE:

DISTRIBUTED BY:
SUNTREE TECHNOLOGIES

CALCULATING FILTER CAPACITY

“SUNTREE TECHNOLOGIES CURB INLET BASKET”

NODE 25 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.87(0.37\text{ac}) (0.20) = 0.06\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.06 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS} / 0.06\text{ CFS} = 14.33\text{ TIMES CAPACITY FOR TREATMENT RUNOFF.}$$

NODE 26 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.84(0.43\text{ac}) (0.20) = 0.07\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.07 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS} / 0.07\text{ CFS} = 12.29\text{ TIMES CAPACITY FOR TREATMENT RUNOFF.}$$

NODE 38 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.87(0.36\text{ac}) (0.20) = 0.06\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.06 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS} / 0.06\text{ CFS} = 14.33\text{ TIMES CAPACITY FOR TREATMENT RUNOFF.}$$

NODE 39 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.87(0.35\text{ac}) (0.20) = 0.06\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.06 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS}/0.06\text{ CFS} = 14.33\text{ TIMES CAPACITY FOR TREATMENT RUNOFF.}$$

NODE 8 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.87(1.11\text{ac}) (0.20) = 0.19\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.19 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS}/0.19\text{ CFS} = 4.53\text{ TIMES CAPACITY FOR TREATMENT RUNOFF}$$

NODE 7.5 (FROM HYDRO REPORT)

Q_{wQ} WATER QUALITY TO BE TREATED

$$Q_{wQ} = 0.87(1.13\text{ac}) (0.20) = 0.20\text{cfs}$$

USING CURB INLET BASKET

- Q TO BE TREATED AS FIRST FLUSH 0.20 CFS Q_{wQ}
FILTER CAPACITY = 0.86CFS W/ INTENSITY 0.20 INCH/HR

OUR CASE, FILTER CAPACITY:

$$0.86\text{ CFS}/0.20\text{ CFS} = 4.3\text{ TIMES CAPACITY FOR TREATMENT RUNOFF}$$

ATTACHMENT F

**OPERATION AND MAINTENANCE PROGRAM FOR
TREATMENT BMPS**

Desilting Basin: Maintenance

1. Inspect all basins before and after rainfall events and weekly during the rest of the rainy season.
2. During extended rainfall events, inspect at least every 24 hours. Examine basin banks for seepage and structural soundness. Repair banks as needed.
3. Check outlet structure and spillway for any damage or obstructions. Repair damages and remove obstructions as needed. Check outlet area for erosion and stabilize, if required.
4. Remove accumulated sediment when the depth has reached one-third the original basin depth.
5. Examine basin banks for seepage and structural soundness.
6. Check inlet and outlet structures and spillway for any damage or obstructions. Repair damage and remove obstructions as needed, or as directed by the RE.
7. Remove standing water from the basin within 72 hours after accumulation.
8. Check inlet and outlet area for erosion and stabilize if required, or if directed by the RE.
9. Properly dispose of sediment and debris removed from the basin.
10. Check fencing for damage and repair as needed or as directed by the engineer.

“SUNTREE TECHNOLOGIES CURB INLET BASKET”

MAINTENANCE

Heavy and expensive equipment is not required.

No need to enter the confined space of the catch basin to service:

- Remove the manhole lid
- Reach in with by hand or with a manhole hook and remove the basket
- Empty the contents of the basket and replace the Storm Boom
- Replace the basket and manhole lid

Storm Boom maintenance

- It is recommended that this boom be replaced every 3 to 4 months, and not exceed 6 months of service

ENVIRO-SAFE HIGH CAPACITY GRATE INLET SKIMMER
CALIFORNIA CURB SHELF BASKET WATER CLEANSING SYSTEM
SAN DIEGO REGIONAL STANDARD CURB INLET

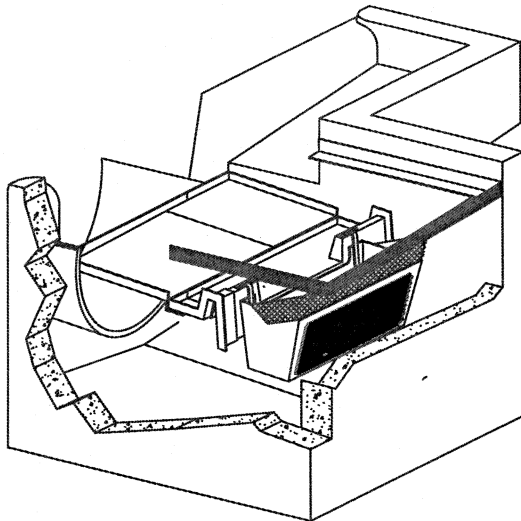


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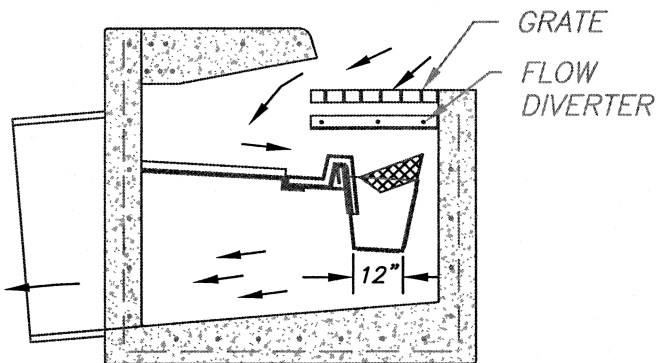


FIGURE 3
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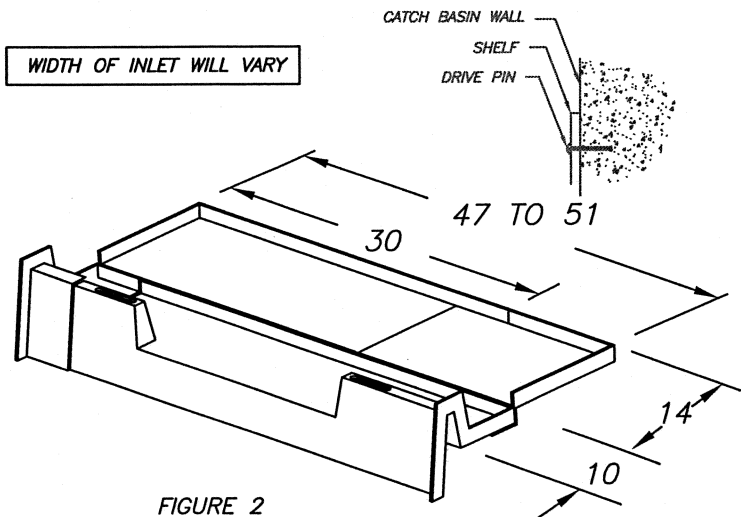


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ATTACHMENT G

FISCAL RESOURCES

SECOND CATEGORY:

The County needs to assure ongoing maintenance. The nature of the proposed BMPs indicates that it is appropriate for property owners to be given primary responsibility for maintenance, on a perpetual basis (unless a stormwater utility is eventually formed). However, the County (in a "backup" role) needs to be able to step in and perform the maintenance if property owner fails, and needs to have security to provide funding for such backup maintenance. Security for "backup" maintenance after the interim period (5 years) would not be provided, however primary owner maintenance responsibility would remain. If a stormwater utility or other permanent mechanism is put into place, it could assume either a primary or backup maintenance role.

Typical BMPs:

- **Biofilters;**
- **Small Detention Basins – Project Specific**
- Infiltration BMP, and;
- Single Storm Drain Inserts, Oil/Water separator, Catch basin insert & screens.

Mechanisms to Assure Maintenance:

1. Stormwater Ordinance Requirement:

The WPO requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.

2. Public Nuisance Abatement:

Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the Uniform Public Nuisance Abatement Procedure. This provides an enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.

3. Notice to Purchasers.

Section 67.813(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.

4. Conditions in Ongoing Land Use Permits:

For those applications (listed in WPO Section 67.803(c)) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance

with the requirements specified in the SMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.

5. Subdivision Public Report:

Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

6. BMP Maintenance Agreement with Easement and Covenant:

An agreement will be entered into with the County, which will function three ways:

- (a) It will commit the land to being used only for purposes of the BMP;
- (b) It will include an agreement by the landowner, to maintain the facilities in accordance with the SWMP (this obligation would be passed on to future purchasers or successors of the landowner, as a covenant); and
- (c) It will include an easement giving the County the right to enter onto the land (and any necessary adjacent land needed for access) to maintain the BMPs.

This would be required of all applications listed in WPO Section 67.804. In the case of subdivisions, this easement and covenant would be recorded on or prior to the Final or Parcel Map.

Funding:

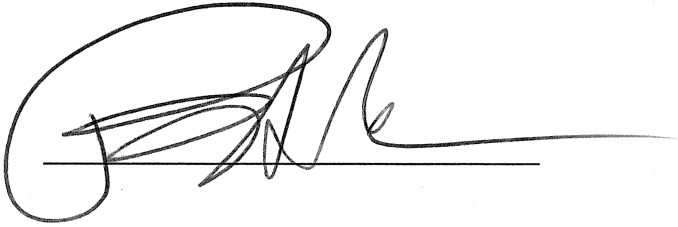
Developer would provide the County with security to substantiate the maintenance agreement, which would remain in place for an interim period of 5 years. The amount of the security would equal the estimated cost of 2 years of maintenance activities. The security can be a Cash Deposit, Letter of Credit or other form acceptable to the County.

The 2 year cost of maintenance activities shall not exceed \$5000.00

ATTACHMENT H

CERTIFICATION SHEET

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



9-24-09

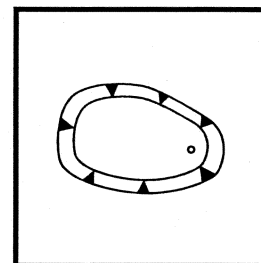
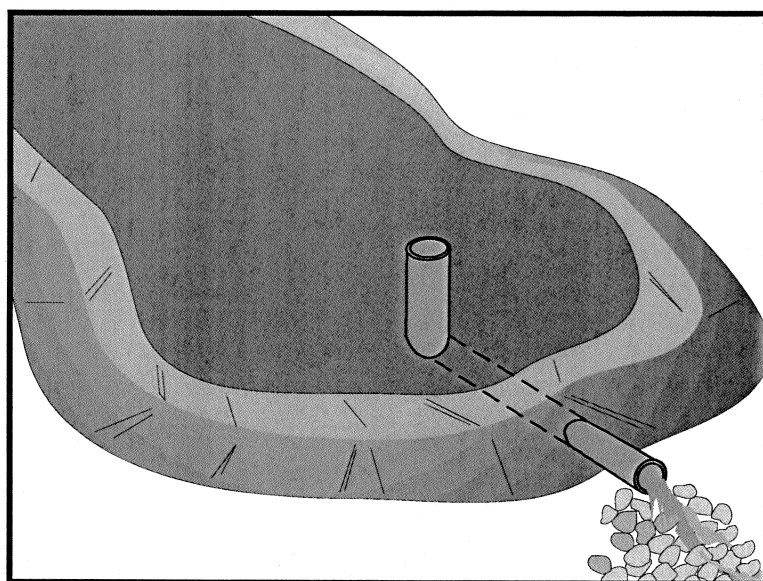
Date



ATTACHMENT I

ADDENDUM

SC-2



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A sediment/desilting basin is a temporary basin formed by excavating and/or constructing an embankment so that sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out before the runoff is discharged (refer to Figures 1 and 2).

Appropriate Applications Sediment basins shall be designed in accordance with Section A of the State of California NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit). If there is insufficient area to construct a sediment basin in accordance with the General Permit requirements, then the alternate desilting design standards specified herein may be used. This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the RE.

Sediment/Desilting Basins shall be considered for use:

- On construction projects with disturbed areas during the rainy season.
- Where sediment-laden water may enter the drainage system or watercourses.
- At outlets of disturbed soil areas with areas between 2 ha and 4 ha (5 ac and 10 ac).

Limitations

- Alternative BMPs must be thoroughly investigated for erosion control before selecting temporary desilting basins.
- Requires large surface areas to permit settling of sediment.
- Not appropriate for drainage areas greater than 30 ha (75 ac).
- Not to be located in live streams

Standards and Specifications

- For safety reasons, basins shall have protective fencing.
- Size may be limited by availability of right-of-way.
- Limit the contributing area to the sediment/desilting basin to only the runoff from the disturbed soil areas. Use temporary concentrated flow conveyance controls to divert runoff from undisturbed areas away from the sediment/desilting basin.

Sediment Basin

- Sediment basins shall, at a minimum, be designed as follows:
 - Option 1: Pursuant to local ordinance for sediment basin design and maintenance, provided that the design efficiency is as protective or more protective of water quality than Option 3.

OR

- Option 2: Sediment basin(s), as measured from the bottom of the basin to the principal outlet, shall have at least a capacity equivalent to 102 cubic meters (3,600 cubic feet) of storage per 0.4 hectare (1 acre) draining into the sediment basin. The length of the basin shall be more than twice the width of the basin. The length is determined by measuring the distance between the inlet and the outlet; and the depth must not be less than 0.9 m (3 ft) nor greater than 1.5 m (5 ft) for safety reasons and for maximum efficiency.

OR

- Option 3: Sediment basin(s) shall be designed using the standard equation:

$$As = 1.2Q/Vs \quad (\text{Eq. 1})$$

Where:

As = Minimum surface area for trapping soil particles of a certain size

Vs = Settling velocity of the design particle size chosen

$$Q = CIA$$

Where:

Q = Discharge rate measured in cubic feet per second

C = Runoff coefficient

I = Precipitation intensity for the 10-year, 6-hour rain event

A = Area draining into the sediment basin in acres

The design particle size shall be the smallest soil grain size determined by wet sieve analysis, or the fine silt sized (0.01mm) particle, and the V_s used shall be 100 percent of the calculated settling velocity.

The length is determined by measuring the distance between the inlet and the outlet; the length shall be more than twice the dimension as the width; the depth shall not be less than 0.9 m (3 ft) nor greater than 1.5 m (5 ft) for safety reasons and for maximum efficiency [0.6 m (2 ft) of sediment storage, 0.6 m (2 ft) of capacity]. The basin(s) shall be located on the site where it can be maintained on a year-round basis and shall be maintained on a schedule to retain the 0.6 m (2 ft) of capacity.

OR

- Option 4: The use of an equivalent surface area design or equation, provided that the design efficiency is as protective or more protective of water quality than Option 3.

Desilting Basin

- Desilting basins shall be designed to have a capacity equivalent to 100 cubic meters of storage (as measured from the top of the basin to the principal outlet) per hectare of contributory area. This design is less than the required to capture the 0.01 mm particle size but larger than that required to capture particles 0.02 mm or larger.
- The length of the basin shall be more than twice the width of the basin; the length shall be determined by measuring the distance between the inlet and the outlet.
- The depth must be no less than one (1) meter nor greater than 1.5 m.
- Basins with an impounding levee greater than 1.5 m (5 ft) tall, measured from the lowest point to the impounding area to the highest point of the levee, and basins capable of impounding more than 1000 cubic meters (35,300 cubic feet), shall be designed by a professional Civil Engineer registered with the state of California. The design must be submitted to the Resident Engineer (RE) for approval at least 7 days prior to the basin construction. The design shall include maintenance requirements, including sediment and vegetation removal, to ensure continuous function of the basin outlet and bypass structures.

General Requirements

- Design and locate sediment/desilting basins so that they can be maintained. Construct desilting basins prior to the rainy season and construction activities.
- Sediment/desilting basins, regardless of size and storage volume, shall include features to accommodate overflow or bypass flows that exceed the design storm event. The calculated basin volume and proposed location shall be submitted to

the RE for approval at least 3 days prior to the basin construction.

- Construct an emergency spillway to accommodate flows not carried by the principal spillway. Spillway shall consist of an open channel (earthen or vegetated) over undisturbed material (not fill) or constructed of a non-erodible riprap.
- Spillway control section, which is a level portion of the spillway channel at the highest elevation in the channel, shall be a minimum of 6 m (20 ft) in length.
- A forebay, constructed upstream of the basin may be provided to remove debris and larger particles.
- Basin inlets shall be located to maximize travel distance to the basin outlet.
- Rock or vegetation shall be used to protect the basin inlet and slopes against erosion.
- The outflow from the basins shall be provided with outlet protection to prevent erosion and scouring of the embankment and channel. See BMP SS-10, "Outlet Protection/Velocity Dissipation Devices."
- Basin shall be located: (1) by excavating a suitable area or where a low embankment can be constructed across a swale, (2) where post-construction (permanent) detention basins will be constructed, (3) where failure would not cause loss of life or property damage, (4) where the basins can be maintained on a year-round basins to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area, and to maintain the basin to provide the required capacity.
- Areas under embankments, structural works, and sediment/desilting basin must be cleared, stripped of vegetation in accordance with Standard Specifications Section 16 – "Clearing and Grubbing."
- Earthwork shall be in accordance with Standard Specifications Section 19 – "Earthwork". Contractor is specifically directed to Standard Specifications Sections 19-5, "Compaction," and 19-6, "Embankment Construction."
- Structure shall be placed on a firm, smooth foundation with the base securely anchored with concrete or other means to prevent floatation.
- Discharge from the basin shall be accomplished through a water quality outlet. An example is shown in Figure 3. The Principal outlet shall consist of a corrugated metal, high density polyethylene (HDPE), or reinforced concrete riser pipe with dewatering holes and an anti-vortex device and trash rack attached to the top of the riser, to prevent floating debris from flowing out of the basin or obstructing the system. This principal structure shall be designed

to accommodate the inflow design storm.

- A rock pile or rock-filled gabions can serve as alternatives to the debris screen, although the designer should be aware of the potential for extra maintenance involved should the pore spaces in the rock pile clog.
- Proper hydraulic design of the outlet is critical to achieving the desired performance of the basin. The water quality outlet should be designed to drain the basin within 24 to 72 hours (also referred to as “drawdown time”). (The 24-hour limit is specified to provide adequate settling time; the 72-hour limit is specified to mitigate vector control concerns.)
- The two most common outlet problems that occur are: (1) the capacity of the outlet is too great resulting in only partial filling of the basin and drawdown time less than designed for; and (2) the outlet clogs because it is not adequately protected against trash and debris. To avoid these problems, the following outlet types are recommended for use: (1) a single orifice outlet with or without the protection of a riser pipe, and (2) perforated riser. Design guidance for single orifice and perforated riser outlets are as follows:

Flow Control Using a Single Orifice At The Bottom Of The Basin

(Figure 1): The outlet control orifice should be sized using the following equation:

$$a = \frac{2A(H - H_o)^{0.5}}{3600CT(2g)^{0.5}} = \frac{(7 \times 10^{-5})A(H - H_o)^{0.5}}{CT} \quad (\text{Eq. 2})$$

where:

- a = area of orifice (ft²) (1 ft² = 0.0929m²)
- A = surface area of the basin at mid elevation (ft²)
- C = orifice coefficient
- T = drawdown time of full basin (hrs)
- G = gravity (32.2 ft/s²)
- H = elevation when the basin is full (ft)
- H_o = final elevation when basin is empty (ft)

With a drawdown time of 40 hours, the equation becomes:

$$a = \frac{(1.75 \times 10^{-6})A(H - H_o)^{0.5}}{C} \quad (\text{Eq. 3})$$

Flow Control Using Multiple Orifices (see Figure2):

$$a_t = \frac{2A(h_{\max})}{CT(2g[h_{\max} - h_{\text{centroid of orifices}}])^{0.5}} \quad (\text{Eq. 4})$$

With terms as described above except:

a_t = total area of orifices

h_{\max} = maximum height from lowest orifice to the maximum water surface (ft)

$h_{\text{centroid of orifices}}$ = height from the lowest orifice to the centroid of the orifice configuration (ft)

Allocate the orifices evenly on two rows; separate the holes by 3x hole diameter vertically, and by 120 degrees horizontally (refer to Figure 3).

Because basins are not maintained for infiltration, water loss by infiltration should be disregarded when designing the hydraulic capacity of the outlet structure.

Care must be taken in the selection of "C"; 0.60 is most often recommended and used. However, based on actual tests, GKY (1989), "Outlet Hydraulics of Extended Detention Facilities for Northern Virginia Planning District Commission", recommends the following:

C = 0.66 for thin materials; where the thickness is equal to or less than the orifice diameter, or

C = 0.80 when the material is thicker than the orifice diameter

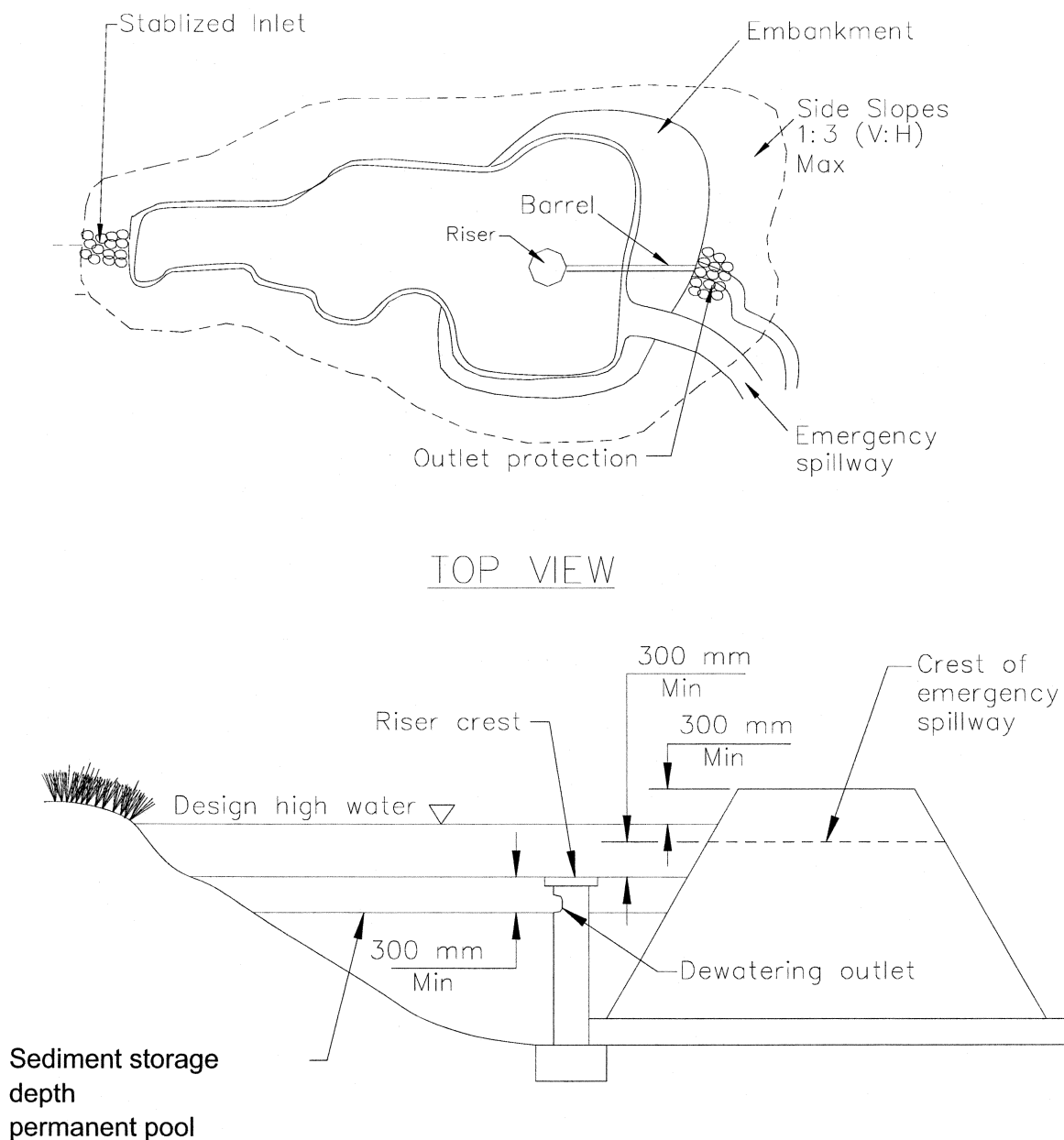
- The Contractor shall verify that the outlet is properly designed to handle the design and peak flows.
- Attach riser pipe (watertight connection) to a horizontal pipe (barrel), which extends through the embankment to toe of fill. Provide anti-seep collars on the barrel.
- Cleanout level shall be clearly marked on the riser pipe
- Avoid dewatering of groundwater to the sediment/desilting basin during the rainy season. Insignificant quantities of accumulated precipitation may be dewatered to the sediment/desilting basin unless precipitation is forecasted within 24 hours. Refer to NS-2 "Dewatering Operations."
- Chain link fencing shall be provided around each sediment/desilting basin to prevent unauthorized entry to the basin or if safety is a concern. Fencing shall be in accordance with Standard Specifications Section 80 – "Fencing."

Maintenance and Inspection

- Inspect sediment/desilting basins before and after rainfall events and weekly during the rest of the rainy season. During extended rainfall events, inspect at

least every 24 hours.

- Examine basin banks for seepage and structural soundness.
- Check inlet and outlet structures and spillway for any damage or obstructions. Repair damage and remove obstructions as needed, or as directed by the RE.
- Remove standing water from the basin within 72 hours after accumulation.
- Check inlet and outlet area for erosion and stabilize if required, or if directed by the RE.
- Remove accumulated sediment when its volume reaches one-third the volume of the sediment storage. Properly dispose of sediment and debris removed from the basin.
- Check fencing for damage and repair as needed or as directed by the RE.



This outlet provides no drainage for permanent pool.

FIGURE 1: SINGLE ORIFICE DESIGN
NOT TO SCALE

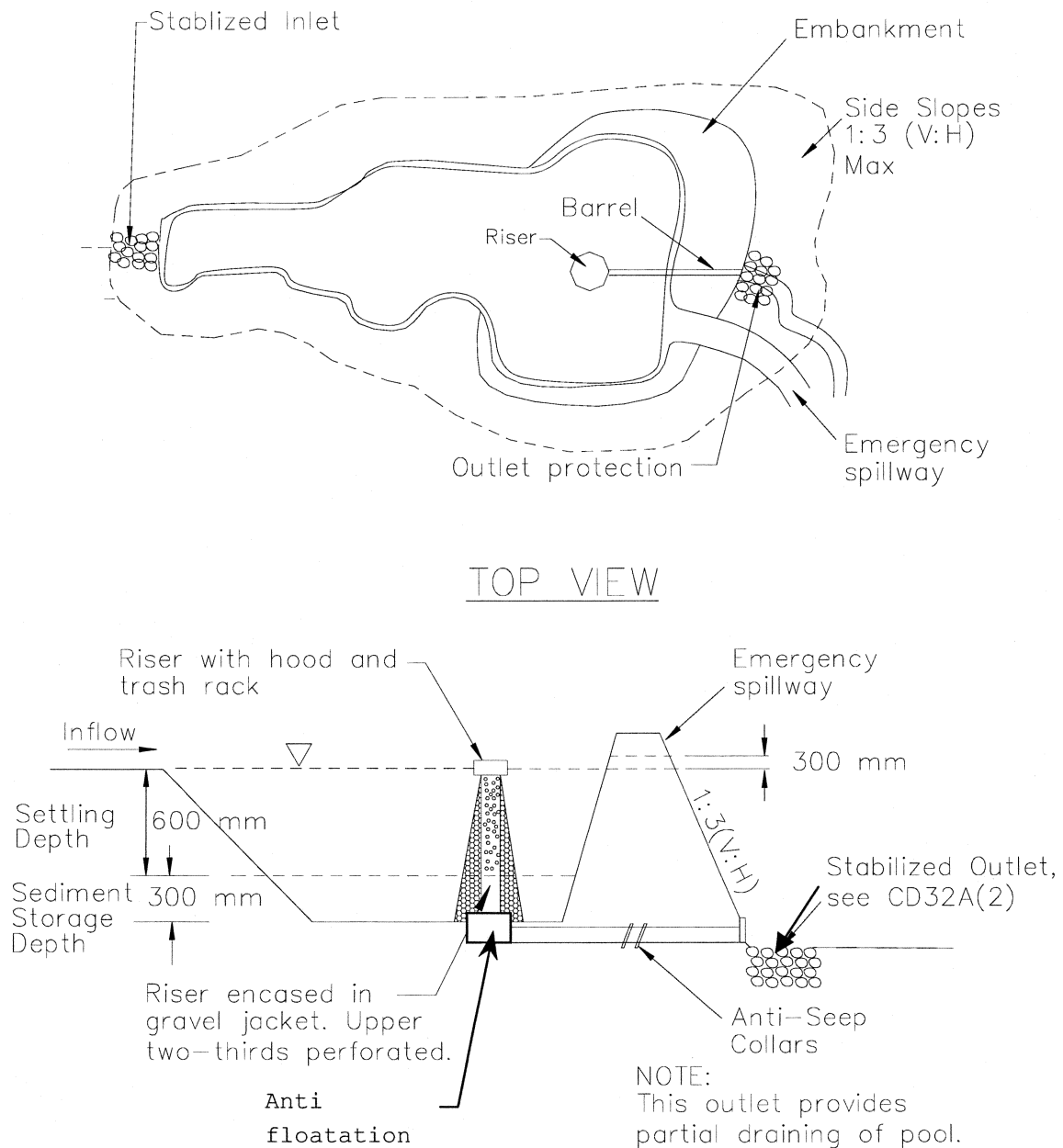
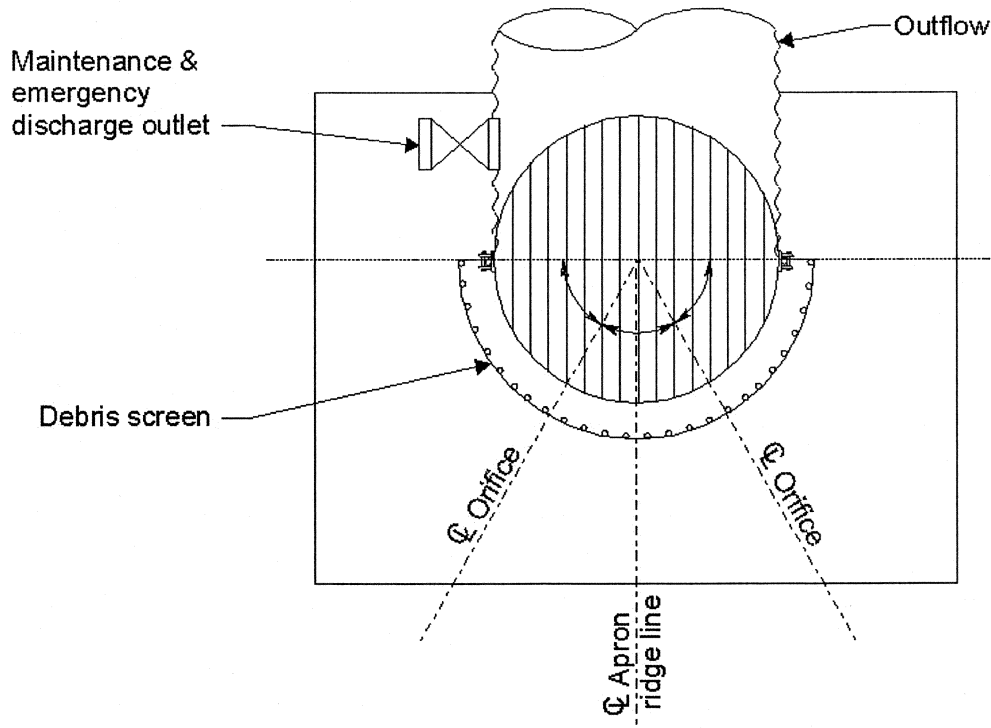


FIGURE 2: MULTIPLE ORIFICE DESIGN
NOT TO SCALE

Plan



Profile

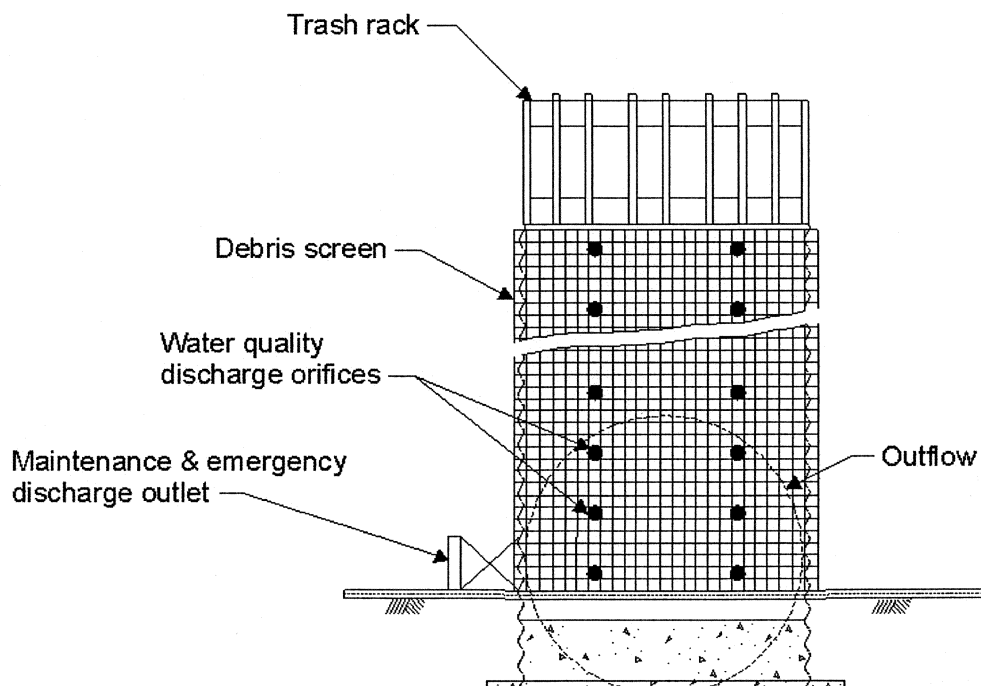


FIGURE 3: MULTIPLE ORIFICE OUTLET RISER
NOT TO SCALE

ATTACHMENT J

ITEMIZED COST ESTIMATE FOR POST CONSTRUCTION BMPS

O & M Costs for BMP Project for Settlers Point TM - Graded Pads																
Estimated values derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.																
					Labor			Equipment			Materials		Total			
					Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost		
BIOFILTER –Temporary Detention Basin/ Desilatation basin																
Preventive Maintenance and Routine Inspections																
ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY												
Monitor height of vegetation	Average vegetation height exceeds 6 inches, emergence of trees, or woody vegetation	Visual inspection of vegetation throughout project	Once during wet season, once during dry season.(depending on growth)	Cut vegetation totally.	10	50	\$ 500.00	one-ton truck & hydro seeder	2	100	\$ 200.00	string trimmer, rake, fork, bags, safety equipment	\$ 50.00	\$ 750.00		
Inspect for debris accumulation	Debris or litter present	Visual observation	During routine trashing, per Districts schedule.	Remove litter, and debris.	0	0	\$ -	one-ton truck & hydro seeder	0	0	\$ -			\$ -		
Inspect for accumulated sediment	Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope.	Visual observation	Annually	Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate.	2	43.63	\$ 87.26	one-ton truck & hydro seeder	1	48.15	\$ 48.15	Disposal of sediment	\$ 300.00	\$ 435.41		
				Notify engineer to determine if regrading is necessary. If necessary, regrade to design specification . If regrading is necessary, the process should start in May. completion prior to wet season.	1	43.63	\$ 43.63	Regrade if necessary	0.5		\$ 300.00		\$ 300.00	\$ 643.63		
Inspect for burrows	Burrows, holes, mounds	Visual observation	Annually and after vegetation trimming.	Where burrows cause seepage, erosion and leakage, backfill firmly.	0	0	\$ -	one-ton truck & hydro seeder	0	26.84	\$ -			\$ -		
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion,emergence of trees, woody vegetation , fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season.	Corrective action prior to wet season. Consult engineer if an immediate solution is not evident.	2	43.63	\$ 87.26	one-ton truck & hydro seeder	2	26.84	\$ 53.68			\$ 140.94		
TOTAL Detention / Desilatation basin maintenance							\$ 718.15				\$ 601.83		\$ 650.00	\$ 1,969.98		
1. BMP flows designed using San Diego County 0.2 in/hr for BMPs																
2. A target storm event is a storm greater than 0.7525 inches of rainfall. For drain inlet inserts, a target storm event is a storm with a prediction of greater than 0.25 inches of rainfall.																
3. Woody wetland vegetation consists of: willows (Salix spp), mule fat (baccharis salicifolia), cottonwood (populus fremontii), and western sycamore (plantanus racemosa). Note, this criterion is not applicable to the wet basin.																

**Itemized cost estimate
for annual maintenance
for post-construction BMP's**

[illegible]

ATTACHMENT K

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	R	Agua Hedionda Creek	90431000	Manganese		7 Miles	2019
					Source Unknown		
				Selenium		7 Miles	2019
					Source Unknown		
				Sulfates		7 Miles	2019
					Source Unknown		
				Total Dissolved Solids		7 Miles	2019
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
9	E	Agua Hedionda Lagoon	90431000	Indicator bacteria		6.8 Acres	2006
					Nonpoint/Point Source		
				Sedimentation/Siltation		6.8 Acres	2019
					Nonpoint/Point Source		
9	R	Aliso Creek	90113000	Indicator bacteria		19 Miles	2005
				<i>This listing for indicator bacteria applies to the Aliso Creek mainstem and all the major tributaries of Aliso Creek which are Sulphur Creek, Wood Canyon, Aliso Hills Canyon, Dairy Fork, and English Canyon.</i>			
					Urban Runoff/Storm Sewers		
					Unknown point source		
					Nonpoint/Point Source		
				Phosphorus		19 Miles	2019
				<i>This listing for phosphorus applies to the Aliso Creek mainstem and all the major tributaries of Aliso Creek which are Sulphur Creek, Wood Canyon, Aliso Hills Canyon, Dairy Fork, and English Canyon.</i>			
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Toxicity		19 Miles	2019
				<i>This listing for toxicity applies to the Aliso Creek mainstem and all the major tributaries of Aliso Creek which are Sulphur Creek, Wood Canyon, Aliso Hills Canyon, Dairy Fork, and English Canyon.</i>			
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
9	E	Aliso Creek (mouth)	90113000	Indicator bacteria		0.29 Acres	2005
					Nonpoint/Point Source		
9	L	Barrett Lake	91130000	Color		125 Acres	2019
					Source Unknown		
				Manganese		125 Acres	2019
					Source Unknown		
				pH		125 Acres	2019
					Source Unknown		
9	R	Buena Creek	90432000	DDT		4.8 Miles	2019
					Source Unknown		
				Nitrate and Nitrite		4.8 Miles	2019
					Source Unknown		
				Phosphate		4.8 Miles	2019
					Source Unknown		
9	R	Buena Vista Creek	90421000	Sediment Toxicity		11 Miles	2019
					Source Unknown		
9	E	Buena Vista Lagoon	90421000	Indicator bacteria		202 Acres	2008
					Nonpoint/Point Source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Nutrients		202 Acres	2019
				<i>Estimated size of impairment is 150 acres located in upper portion of lagoon.</i>			
					Nonpoint/Point Source		
				Sedimentation/Siltation		202 Acres	2019
					Nonpoint/Point Source		
9	R	Chollas Creek	90822000	Copper		3.5 Miles	2004
					Nonpoint/Point Source		
				Indicator bacteria		3.5 Miles	2005
					Nonpoint/Point Source		
				Lead		3.5 Miles	2004
					Nonpoint/Point Source		
				Zinc		3.5 Miles	2004
					Nonpoint/Point Source		
9	R	Cloverdale Creek	90532000	Phosphorus		1.2 Miles	2019
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Total Dissolved Solids		1.2 Miles	2019
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	Cottonwood Creek (San Marcos Creek watershed)	90451000	DDT		1.9 Miles	2019
					Source Unknown		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Phosphorus		1.9 Miles	2019
					Source Unknown		
				Sediment Toxicity		1.9 Miles	2019
					Source Unknown		
9	B	Dana Point Harbor	90114000	Indicator bacteria <i>Impairment located at Baby Beach.</i>	Urban Runoff/Storm Sewers Marinas and Recreational Boating Unknown Nonpoint Source Unknown point source	119 Acres	2006
9	R	De Luz Creek	90221000	Iron		14 Miles	2019
					Source Unknown		
				Manganese		14 Miles	2019
					Source Unknown		
9	L	El Capitan Lake	90731000	Color		1454 Acres	2019
					Source Unknown		
				Manganese		1454 Acres	2019
					Source Unknown		
				pH		1454 Acres	2019
					Source Unknown		
9	R	Encinitas Creek	90451000	Phosphorus		3 Miles	2019
					Source Unknown		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	R	English Canyon	90113000	Benzo[b]fluoranthene		3.6 Miles	2019
					Source Unknown		
				Dieldrin		3.6 Miles	2019
					Source Unknown		
				Sediment Toxicity		3.6 Miles	2019
					Source Unknown		
9	R	Escondido Creek	90462000	DDT		26 Miles	2019
					Source Unknown		
				Manganese		26 Miles	2019
					Source Unknown		
				Phosphate		26 Miles	2019
					Source Unknown		
				Selenium		26 Miles	2019
					Source Unknown		
				Sulfates		26 Miles	2019
					Source Unknown		
				Total Dissolved Solids		26 Miles	2019
					Source Unknown		
9	E	Famosa Slough and Channel	90711000	Eutrophic		32 Acres	2019
					Nonpoint Source		
9	R	Felicita Creek	90523000	Aluminum		0.92 Miles	2019
					Source Unknown		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Total Dissolved Solids		0.92 Miles	2019
					Agricultural Return Flows		
					Urban Runoff/Storm Sewers		
					Flow Regulation/Modification		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	Forester Creek	90712000	Fecal Coliform		6.4 Miles	2005
				<i>Impairment Located at lower 1 mile.</i>			
					Urban Runoff/Storm Sewers		
					Spills		
					Unknown Nonpoint Source		
					Unknown point source		
				Oxygen, Dissolved		6.4 Miles	2019
					Source Unknown		
				pH		6.4 Miles	2019
				<i>Impairment Located at upper 3 miles.</i>			
					Industrial Point Sources		
					Habitat Modification		
					Spills		
					Unknown Nonpoint Source		
					Unknown point source		
				Phosphorus		6.4 Miles	2019
					Source Unknown		
				Total Dissolved Solids		6.4 Miles	2019
				<i>Impairment Located at lower 1 mile.</i>			
					Agricultural Return Flows		
					Urban Runoff/Storm Sewers		
					Flow Regulation/Modification		
					Unknown Nonpoint Source		
					Unknown point source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	R	Green Valley Creek	90521000	Chloride		0.98 Miles	2019
					Source Unknown		
				Manganese		0.98 Miles	2019
					Source Unknown		
				Pentachlorophenol (PCP)		0.98 Miles	2019
					Source Unknown		
				Sulfates		0.98 Miles	2019
					Urban Runoff/Storm Sewers		
					Natural Sources		
					Unknown Nonpoint Source		
					Unknown point source		
9	L	Guajome Lake	90311000	Eutrophic		33 Acres	2019
					Nonpoint/Point Source		
9	L	Hodges, Lake	90521000	Color		1104 Acres	2019
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Manganese		1104 Acres	2019
					Source Unknown		
				Nitrogen		1104 Acres	2019
					Agriculture		
					Dairies		
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				pH		1104 Acres	2019
				Phosphorus	Source Unknown	1104 Acres	2019
					Agriculture		
					Dairies		
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Turbidity		1104 Acres	2019
					Source Unknown		
9	R	Kit Carson Creek	90521000	Pentachlorophenol (PCP)		0.99 Miles	2019
					Source Unknown		
				Total Dissolved Solids		0.99 Miles	2019
					Agricultural Return Flows		
					Urban Runoff/Storm Sewers		
					Flow Regulation/Modification		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	Laguna Canyon Channel	90112000	Sediment Toxicity		1.6 Miles	2019
					Source Unknown		
9	E	Loma Alta Slough	90410000	Eutrophic		8.2 Acres	2019
					Nonpoint Source		
				Indicator bacteria		8.2 Acres	2008
					Nonpoint Source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	R	Long Canyon Creek	90283000	Total Dissolved Solids		8.3 Miles	2019
					Source Unknown		
9	R	Los Penasquitos Creek	90610000	Phosphate		12 Miles	2019
					Source Unknown		
				Total Dissolved Solids		12 Miles	2019
					Source Unknown		
9	E	Los Penasquitos Lagoon	90610000	Sedimentation/Siltation		469 Acres	2019
					Nonpoint/Point Source		
9	L	Loveland Reservoir	90931000	Aluminum		420 Acres	2019
					Source Unknown		
				Manganese		420 Acres	2019
					Source Unknown		
				Oxygen, Dissolved		420 Acres	2019
					Source Unknown		
				pH		420 Acres	2019
				<i>This listing was made by USEPA for 2006.</i>			
					Source Unknown		
9	B	Mission Bay (area at mouth of Rose Creek only)	90640000	Eutrophic		9.2 Acres	2019
					Nonpoint/Point Source		
				Lead		9.2 Acres	2019
					Nonpoint/Point Source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	B	Mission Bay (area at mouth of Tecolote Creek only)	90650000	Eutrophic		3.1 Acres	2019
				Lead	Nonpoint/Point Source	3.1 Acres	2019
					Nonpoint/Point Source		
9	C	Mission Bay Shoreline	90630000	Indicator bacteria		28 Miles	2019
				<i>This listing was made by USEPA for 2006.</i>			
					Source Unknown		
9	L	Morena Reservoir	91150000	Color		104 Acres	2019
					Source Unknown		
				Manganese		104 Acres	2019
					Source Unknown		
				pH		104 Acres	2019
					Source Unknown		
9	L	Murray Reservoir	90711000	pH		119 Acres	2019
					Source Unknown		
9	R	Murrieta Creek	90252000	Iron		12 Miles	2019
					Source Unknown		
				Manganese		12 Miles	2019
					Source Unknown		
				Nitrogen		12 Miles	2019
					Source Unknown		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Phosphorus		12 Miles	2019
					Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source		
9	R	Oso Creek (at Mission Viejo Golf Course)	90120000	Chloride		1 Miles	2019
					Source Unknown		
				Sulfates		1 Miles	2019
					Source Unknown		
				Total Dissolved Solids		1 Miles	2019
					Source Unknown		
9	L	Otay Reservoir, Lower	91031000	Color		1050 Acres	2019
					Source Unknown		
				Iron		1050 Acres	2019
					Source Unknown		
				Manganese		1050 Acres	2019
					Source Unknown		
				Nitrogen, ammonia (Total Ammonia)		1050 Acres	2019
					Source Unknown		
				pH (high)		1050 Acres	2019
					Source Unknown		
9	C	Pacific Ocean Shoreline, Aliso HSA	90113000	Indicator bacteria		0.65 Miles	2005
					Impairment located at Laguna Beach at Lagunita Place / Blue Lagoon Place, Aliso Beach. Nonpoint/Point Source		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	C	Pacific Ocean Shoreline, Buena Vista Creek HA	90421000	Indicator bacteria <i>Impairment located at Buena Vista Creek, Carlsbad City Beach at Carlsbad Village Drive, Carlsbad State Beach at Pine Avenue.</i>		1.2 Miles	2008
Nonpoint/Point Source							
9	C	Pacific Ocean Shoreline, Dana Point HSA	90114000	Indicator bacteria <i>Impairment located at Aliso Beach at West Street, Aliso Beach at Table Rock Drive, 1000 Steps Beach at Pacific Coast Hwy (Hospital, 9th Ave), Salt Creek (large outlet), Salt Creek Beach at Salt Creek service road, Salt Creek Beach at Dana Strand Road, and Monarch Beach.</i>		2 Miles	2005
Nonpoint/Point Source							
9	C	Pacific Ocean Shoreline, Escondido Creek HA	90461000	Indicator bacteria <i>Impairment located at San Elijo Lagoon outlet.</i>		0.44 Miles	2008
Nonpoint/Point Source							
9	C	Pacific Ocean Shoreline, Imperial Beach Pier	91010000	PCBs (Polychlorinated biphenyls)		0.42 Miles	2019
Source Unknown							
9	C	Pacific Ocean Shoreline, Laguna Beach HSA	90112000	Indicator bacteria <i>Impairment located at Main Laguna Beach, Laguna Beach at Ocean Avenue, Laguna Beach at Laguna Avenue, Laguna Beach at Cleo Street, Arch Cove at Bluebird Canyon Road, Laguna Beach at Dumond Drive.</i>		1.8 Miles	2005
Nonpoint/Point Source							
9	C	Pacific Ocean Shoreline, Loma Alta HA	90410000	Indicator bacteria <i>Impairment located at Loma Alta Creek Mouth.</i>		1.1 Miles	2008
Nonpoint/Point Source							
9	C	Pacific Ocean Shoreline, Lower San Juan HSA	90120000	Indicator bacteria <i>Impairment located at North Beach Creek, San Juan Creek (large outlet), Capistrano Beach, South Capistrano Beach at Beach Road.</i>		1.2 Miles	2008
Nonpoint/Point Source							

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	C	Pacific Ocean Shoreline, San Clemente HA	90130000	Indicator bacteria <i>Impairment located at Poche Beach (large outlet), Ole Hanson Beach Club Beach at Pico Drain, San Clemente City Beach at El Portal St. Stairs, San Clemente City Beach at Mariposa St., San Clemente City Beach at Linda Lane, San Clemente City Beach at South Linda Lane, San Clemente City Beach at Lifeguard Headquarters, Under San Clemente Municipal Pier, San Clemente City Beach at Trafalgar Canyon (Trafalgar Ln.), San Clemente State Beach at Riviera Beach, San Clemente State Beach at Cypress Shores.</i>		3.7 Miles	2005
				Nonpoint/Point Source			
9	C	Pacific Ocean Shoreline, San Diego HU	90711000	Indicator bacteria <i>Impairment located at San Diego River Mouth (aka Dog Beach).</i>		0.37 Miles	2005
				Nonpoint/Point Source			
9	C	Pacific Ocean Shoreline, San Dieguito HU	90511000	Indicator bacteria <i>Impairment located at San Dieguito Lagoon Mouth, Solana Beach.</i>		0.86 Miles	2005
				Nonpoint/Point Source			
9	C	Pacific Ocean Shoreline, San Joaquin Hills HSA	90111000	Indicator bacteria <i>Impairment located at Cameo Cove at Irvine Cove Dr./Riviera Way, Heisler Park-North</i>	Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source	0.63 Miles	2005
9	C	Pacific Ocean Shoreline, San Luis Rey HU	90311000	Indicator bacteria <i>Impairment located at San Luis Rey River Mouth.</i>		0.49 Miles	2005
				Nonpoint/Point Source			
9	C	Pacific Ocean Shoreline, San Marcos HA	90451000	Indicator bacteria <i>Impairment located at Moonlight State Beach.</i>		0.5 Miles	2005
				Nonpoint/Point Source			
9	C	Pacific Ocean Shoreline, Scripps HA	90630000	Indicator bacteria <i>This listing for indicator bacteria onlly applies to the Childrens Pool Beach area of this ocean shoreline segment.</i>		3.9 Miles	2019
				Nonpoint/Point Source			

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	C	Pacific Ocean Shoreline, Tijuana HU	91111000	Indicator bacteria <i>Impairment located from the border, extending north along the shore.</i> Nonpoint/Point Source		3 Miles	2010
9	R	Pine Valley Creek (Upper)	91141000	Enterococcus		2.9 Miles	2010
					Grazing-Related Sources Concentrated Animal Feeding Operations (permitted, point source) Transient encampments		
				Phosphorus		2.9 Miles	2019
					Source Unknown		
				Turbidity		2.9 Miles	2019
					Source Unknown		
9	R	Pogi Canyon Creek	91020000	DDT		7.8 Miles	2019
					Source Unknown		
9	R	Prima Deshecha Creek	90130000	Phosphorus		1.2 Miles	2019
					Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source		
				Turbidity		1.2 Miles	2019
					Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source		
9	R	Rainbow Creek	90222000	Iron		5 Miles	2019
					Source Unknown		

2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS REQUIRING TMDLS

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Sulfates		5 Miles	2019
					Source Unknown		
				Total Dissolved Solids		5 Miles	2019
					Source Unknown		
9	R	Reidy Canyon Creek	90462000	Phosphorus		3.9 Miles	2019
					Source Unknown		
9	B	San Diego Bay	91010000	PCBs (Polychlorinated biphenyls)		10783 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, 32nd St San Diego Naval Station	90822000	Benthic Community Effects		103 Acres	2019
					Nonpoint/Point Source		
				Sediment Toxicity		103 Acres	2019
					Nonpoint/Point Source		
9	B	San Diego Bay Shoreline, at Americas Cup Harbor	90810000	Copper		88 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, at Bayside Park (J Street)	90911000	Indicator bacteria		50 Acres	2019
				<i>This listing was made by USEPA for 2006.</i>			
					Source Unknown		
9	B	San Diego Bay Shoreline, at Coronado Cays	91010000	Copper		47 Acres	2019
					Source Unknown		

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SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	B	San Diego Bay Shoreline, at Glorietta Bay	91010000	Copper		52 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, at Harbor Island (East Basin)	90821000	Copper		73 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, at Harbor Island (West Basin)	90810000	Copper		132 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, at Marriott Marina	90821000	Copper		24 Acres	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, between Sampson and 28th Streets	90822000	Copper		53 Acres	2005
					Nonpoint/Point Source		
				Mercury		53 Acres	2006
					Nonpoint/Point Source		
				PAHs (Polycyclic Aromatic Hydrocarbons)		53 Acres	2006
					Nonpoint/Point Source		
				PCBs (Polychlorinated biphenyls)		53 Acres	2019
					Nonpoint/Point Source		
				Zinc		53 Acres	2019
					Nonpoint/Point Source		

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	C	San Diego Bay Shoreline, Chula Vista Marina	90912000	Copper		0.41 Miles	2019
					Source Unknown		
9	B	San Diego Bay Shoreline, Downtown Anchorage	90821000	Benthic Community Effects		7.4 Acres	2019
					Nonpoint/Point Source		
				Sediment Toxicity		7.4 Acres	2019
					Nonpoint/Point Source		
9	C	San Diego Bay Shoreline, G Street Pier	90821000	Indicator bacteria		0.42 Miles	2006
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
9	B	San Diego Bay Shoreline, near Chollas Creek	90822000	Benthic Community Effects		15 Acres	2006
					Nonpoint/Point Source		
				Sediment Toxicity		15 Acres	2006
					Nonpoint/Point Source		
9	B	San Diego Bay Shoreline, near Coronado Bridge	90822000	Benthic Community Effects		37 Acres	2019
					Nonpoint/Point Source		
				Sediment Toxicity		37 Acres	2019
				<i>Includes Crosby Street/Cesar Chavez Park area, that will receive additional monitoring.</i>			
					Nonpoint/Point Source		
9	B	San Diego Bay Shoreline, near sub base	90810000	Benthic Community Effects		16 Acres	2019
					Nonpoint/Point Source		
				Sediment Toxicity		16 Acres	2019
					Nonpoint/Point Source		

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	B	San Diego Bay Shoreline, near Switzer Creek	90821000	Chlordane	Urban Runoff/Storm Sewers Other Boatyards Nonpoint/Point Source	5.5 Acres	2019
				Lindane/Hexachlorocyclohexane (HCH)	Urban Runoff/Storm Sewers Other Boatyards Nonpoint/Point Source	5.5 Acres	2019
				PAHs (Polycyclic Aromatic Hydrocarbons)	Urban Runoff/Storm Sewers Other Boatyards Nonpoint/Point Source	5.5 Acres	2019
9	B	San Diego Bay Shoreline, North of 24th Street Marine Terminal	90832000	Benthic Community Effects	Nonpoint/Point Source	9.5 Acres	2019
				Sediment Toxicity	Nonpoint/Point Source	9.5 Acres	2019
9	B	San Diego Bay Shoreline, Seventh Street Channel	90831000	Benthic Community Effects	Nonpoint/Point Source	9 Acres	2008
				Sediment Toxicity	Nonpoint/Point Source	9 Acres	2008
9	C	San Diego Bay Shoreline, Shelter Island Shoreline Park	90810000	Indicator bacteria	Unknown Nonpoint Source Unknown point source	0.42 Miles	2006

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	B	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	90821000	Benthic Community Effects		9.9 Acres	2019
					Nonpoint/Point Source		
				Indicator bacteria		9.9 Acres	2006
				<i>Estimated size of impairment is 0.4 miles around the shoreline of the bay.</i>			
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Sediment Toxicity		9.9 Acres	2019
					Nonpoint/Point Source		
9	R	San Diego River (Lower)	90711000	Fecal Coliform		16 Miles	2005
				<i>Lower 6 miles.</i>			
					Urban Runoff/Storm Sewers		
					Wastewater		
					Nonpoint/Point Source		
				Low Dissolved Oxygen		16 Miles	2019
				<i>Impairment transcends adjacent Calwater watershed 90712.</i>			
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Phosphorus		16 Miles	2019
				<i>Impairment transcends adjacent Calwater watershed 90712.</i>			
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		
				Total Dissolved Solids		16 Miles	2019
				<i>Impairment transcends adjacent Calwater watershed 90712.</i>			
					Urban Runoff/Storm Sewers		
					Flow Regulation/Modification		
					Natural Sources		
					Unknown Nonpoint Source		
					Unknown point source		

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	E	San Elijo Lagoon	90461000	Eutrophic <i>Estimated size of impairment is 330 acres.</i>		566 Acres	2019
					Nonpoint/Point Source		
				Indicator bacteria <i>Estimated size of impairment is 150 acres.</i>		566 Acres	2008
					Nonpoint/Point Source		
				Sedimentation/Siltation <i>Estimated size of impairment is 150 acres.</i>		566 Acres	2019
					Nonpoint/Point Source		
9	R	San Juan Creek	90120000	DDE		1 Miles	2019
					Source Unknown		
				Indicator bacteria		1 Miles	2005
					Nonpoint/Point Source		
9	E	San Juan Creek (mouth)	90120000	Indicator bacteria		6.3 Acres	2008
					Nonpoint/Point Source		
9	R	San Luis Rey River	90311000	Chloride <i>Impairment located at lower 13 miles.</i>		19 Miles	2019
					Urban Runoff/Storm Sewers		
					Unknown Nonpoint Source		
					Unknown point source		

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
				Total Dissolved Solids		19 Miles	2019
					Industrial Point Sources		
					Agriculture-storm runoff		
					Urban Runoff/Storm Sewers		
					Surface Mining		
					Flow Regulation/Modification		
					Natural Sources		
					Golf course activities		
					Unknown Nonpoint Source		
					Unknown point source		
9	R	San Marcos Creek	90451000	DDE		19 Miles	2019
					Source Unknown		
				Phosphorus		19 Miles	2019
					Source Unknown		
				Sediment Toxicity		19 Miles	2019
					Source Unknown		
9	L	San Marcos Lake	90452000	Ammonia as Nitrogen		17 Acres	2019
					Source Unknown		
				Nutrients		17 Acres	2019
					Source Unknown		
				Phosphorus		17 Acres	2019
					Source Unknown		
9	L	San Vicente Reservoir	90721000	Chloride		1058 Acres	2019
					Source Unknown		

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				Color		1058 Acres	2019
				Manganese	Source Unknown	1058 Acres	2019
				pH (high)	Source Unknown	1058 Acres	2019
				Sulfates	Source Unknown	1058 Acres	2019
					Source Unknown		
9	R	Sandia Creek	90222000	Iron		1.5 Miles	2019
				Manganese	Source Unknown	1.5 Miles	2019
				Nitrogen	Source Unknown	1.5 Miles	2019
				Sulfates	Source Unknown	1.5 Miles	2019
				Total Dissolved Solids	Source Unknown	1.5 Miles	2019
					Urban Runoff/Storm Sewers Flow Regulation/Modification Natural Sources Unknown Nonpoint Source Unknown point source		
9	E	Santa Margarita Lagoon	90211000	Eutrophic		28 Acres	2019
					Nonpoint/Point Source		

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	R	Santa Margarita River (Upper)	90222000	Phosphorus	Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source	18 Miles	2019
9	R	Segunda Deshecha Creek	90130000	Phosphorus	Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source	0.92 Miles	2019
				Turbidity	Construction/Land Development Urban Runoff/Storm Sewers Channelization Flow Regulation/Modification Unknown Nonpoint Source Unknown point source	0.92 Miles	2019
9	R	Soledad Canyon	90610000	Sediment Toxicity	Source Unknown	1.7 Miles	2019
9	L	Sutherland Reservoir	90553000	Color	Urban Runoff/Storm Sewers Unknown Nonpoint Source Unknown point source	561 Acres	2019
				Manganese	Source Unknown	561 Acres	2019
				pH	Source Unknown	561 Acres	2019

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	ESTIMATED SIZE AFFECTED	PROPOSED TMDL COMPLETION
9	L	Sweetwater Reservoir	90921000	Oxygen, Dissolved		925 Acres	2019
					Source Unknown		
9	R	Tecolote Creek	90650000	Cadmium		6.6 Miles	2019
					Nonpoint/Point Source		
				Copper		6.6 Miles	2019
					Nonpoint/Point Source		
				Indicator bacteria		6.6 Miles	2006
					Nonpoint/Point Source		
				Lead		6.6 Miles	2019
					Nonpoint/Point Source		
				Phosphorus		6.6 Miles	2019
					Source Unknown		
				Toxicity		6.6 Miles	2019
					Nonpoint/Point Source		
				Turbidity		6.6 Miles	2019
					Source Unknown		
				Zinc		6.6 Miles	2019
					Nonpoint/Point Source		
9	R	Temecula Creek	90251000	Nitrogen		44 Miles	2019
					Source Unknown		
				Phosphorus		44 Miles	2019
					Source Unknown		

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				Total Dissolved Solids		44 Miles	2019
					Source Unknown		
9	R	Tijuana River	91111000	Eutrophic		6 Miles	2019
				Indicator bacteria	Nonpoint/Point Source	6 Miles	2010
				Low Dissolved Oxygen	Nonpoint/Point Source	6 Miles	2019
				Pesticides	Nonpoint/Point Source	6 Miles	2019
				Solids	Nonpoint/Point Source	6 Miles	2019
				Synthetic Organics	Nonpoint/Point Source	6 Miles	2019
				Trace Elements	Nonpoint/Point Source	6 Miles	2019
				Trash	Nonpoint/Point Source	6 Miles	2019
					Nonpoint/Point Source		
9	E	Tijuana River Estuary	91111000	Eutrophic		1319 Acres	2019
				<i>Estimated size of impairment is 1 acre.</i>			
				Indicator bacteria	Nonpoint/Point Source	1319 Acres	2010
				<i>Estimated size of impairment is 150 acres.</i>			
					Nonpoint/Point Source		

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			Lead		1319 Acres	2019
			<i>Estimated size of impairment is 1 acre.</i>			
				Nonpoint/Point Source		
			Low Dissolved Oxygen		1319 Acres	2019
				Urban Runoff/Storm Sewers		
				Wastewater		
				Unknown Nonpoint Source		
				Unknown point source		
			Nickel		1319 Acres	2019
			<i>Estimated size of impairment is 1 acre.</i>			
				Nonpoint/Point Source		
			Pesticides		1319 Acres	2019
			<i>Estimated size of impairment is 1 acre.</i>			
				Nonpoint/Point Source		
			Thallium		1319 Acres	2019
			<i>Estimated size of impairment is 1 acre.</i>			
				Nonpoint/Point Source		
			Trash		1319 Acres	2019
			<i>Estimated size of impairment is 1 acre.</i>			
				Nonpoint/Point Source		
			Turbidity		1319 Acres	2019
				Source Unknown		

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ABBREVIATIONS

REGIONAL WATER QUALITY CONTROL BOARDS

- 1 North Coast
- 2 San Francisco Bay
- 3 Central Coast
- 4 Los Angeles
- 5 Central Valley
- 6 Lahontan
- 7 Colorado River Basin
- 8 Santa Ana
- 9 San Diego

WATER BODY TYPE

- B = Bays and Harbors
 C = Coastal Shorelines/Beaches
 E = Estuaries
 L = Lakes/Reservoirs
 R = Rivers and Streams
 S = Saline Lakes
 T = Wetlands, Tidal
 W = Wetlands, Freshwater

CALWATER WATERSHED

"Calwater Watershed" is the State Water Resources Control Board hydrological subunit area or an even smaller area delineation.

GROUP A PESTICIDES OR CHEM A

aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene